ENGINEERING NEWS-RECORD

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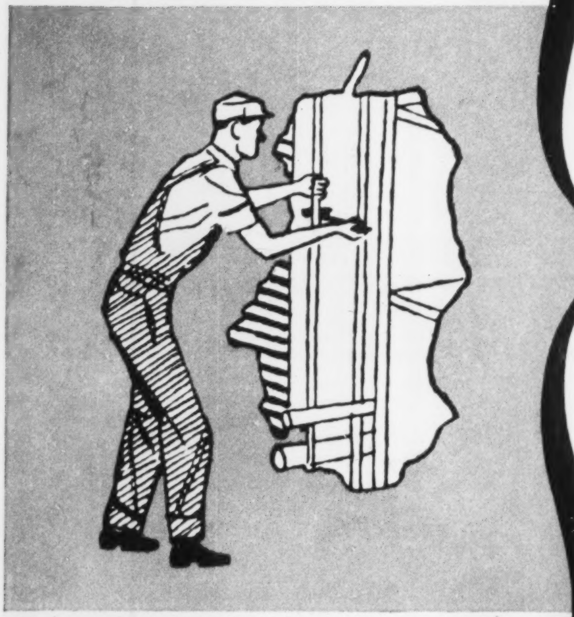
A McGRAW-HILL PUBLICATION

Pipe Repair Jobs . . .



PLUMBER	$2.84 PER HOUR
MASON	$3.13 PER HOUR
CARPENTER	$2.63 PER HOUR
PLASTERER	$3.08 PER HOUR
PAINTER	$2.57 PER HOUR

add up to just one thing . . .

CORROSION COSTS YOU MORE THAN WROUGHT IRON

There's nothing like a repair job to point up the false economy of installing low-first-cost piping. The original installation is quickly made by a pipe fitter, but the replacement calls for hours of work by as many as five crafts, all carrying a high price tag. This first failure may wipe out initial savings, a dozen times over. And loss in production or utilization during shutdown may amount to far more than the maintenance charge.

It all adds up to one thing—*corrosion costs you more than wrought iron.*

In literally thousands of applications where corrosion is a threat to service life, the use of Byers Wrought Iron pipe is the soundest kind of economy move. This material's greater durability, proved in past service records, is curbing high maintenance and repair costs in a wide variety of industries.

The next time you approve or specify pipe, investigate the superior performance of Byers Wrought Iron pipe. Remember, it takes only ONE to *install* pipe, but FIVE to *repair* it!

You'll find a lot of helpful information on the control of excessive maintenance in our bulletin, WROUGHT IRON FOR PIPING SYSTEMS. Write for your copy.

Labor costs shown above are estimated national averages according to Bureau of National Affairs, Inc.

A. M. Byers Company, Pittsburgh, Pa. Established 1864. Boston, New York, Philadelphia, Washington, Atlanta, Chicago, St. Louis, Houston, San Francisco. Export Division: New York, N.Y.

BYERS

CORROSION COSTS YOU MORE THAN WROUGHT IRON

WROUGHT IRON

TUBULAR AND HOT ROLLED PRODUCTS

ELECTRIC FURNACE QUALITY ALLOY AND STAINLESS STEEL PRODUCTS

For Public Service

in behalf of modern highways

We are proud of being awarded the 1952 Silver Anvil Trophy of the American Public Relations Association for meritorious public service in behalf of a modern highway system for America. The "Better Roads" campaign, sponsored by Goodyear in national magazines and newspapers, played an important part in the current nationwide drive for improved highway transportation facilities. It is one more example of the wide range of Goodyear's activities to be of greater service to every user of motor transportation.

1952
AWARD
AMERICAN
PUBLIC RELATIONS
ASSOCIATION
GOODYEAR TIRE AND RUBBER COMPANY
FOR MERITORIOUS
PUBLIC RELATIONS PERFORMANCE
IN THE FIELD OF
TRANSPORTATION

"MOTOR TRANSPORTATION IS THE LIFEBLOOD OF AMERICA. THE HIGHWAYS ARE ITS ARTERIES—WE CANNOT LET THEM HARDEN."

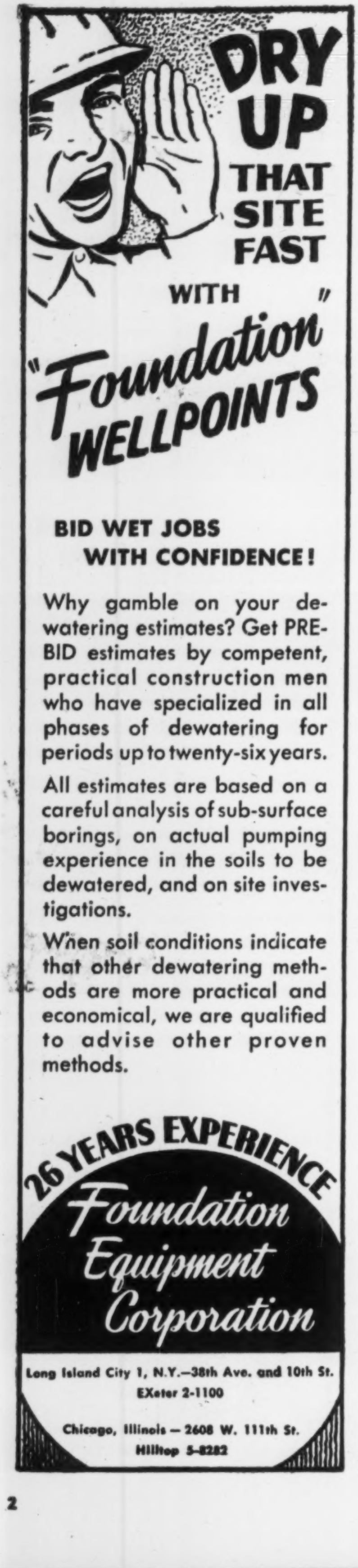
P.W. Litchfield

Chairman of the Board, The Goodyear Tire & Rubber Company, Inc.

(This timely quotation keynoted Goodyear's award-winning "Better Roads" campaign.)

GOODYEAR

America needs better, safer roads. Let's bring them up to PAR


DRY UP THAT SITE FAST WITH "Foundation" WELLPOINTS

BID WET JOBS WITH CONFIDENCE!

Why gamble on your dewatering estimates? Get PRE-BID estimates by competent, practical construction men who have specialized in all phases of dewatering for periods up to twenty-six years.

All estimates are based on a careful analysis of sub-surface borings, on actual pumping experience in the soils to be dewatered, and on site investigations.

When soil conditions indicate that other dewatering methods are more practical and economical, we are qualified to advise other proven methods.

Foundation Equipment Corporation

Long Island City 1, N.Y.—38th Ave. and 10th St.
EXeter 2-1100

Chicago, Illinois — 2608 W. 111th St.
Hilltop 5-8282

ENGINEERING NEWS-RECORD

ABP Member ABC

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Robert F. Boger
Publisher

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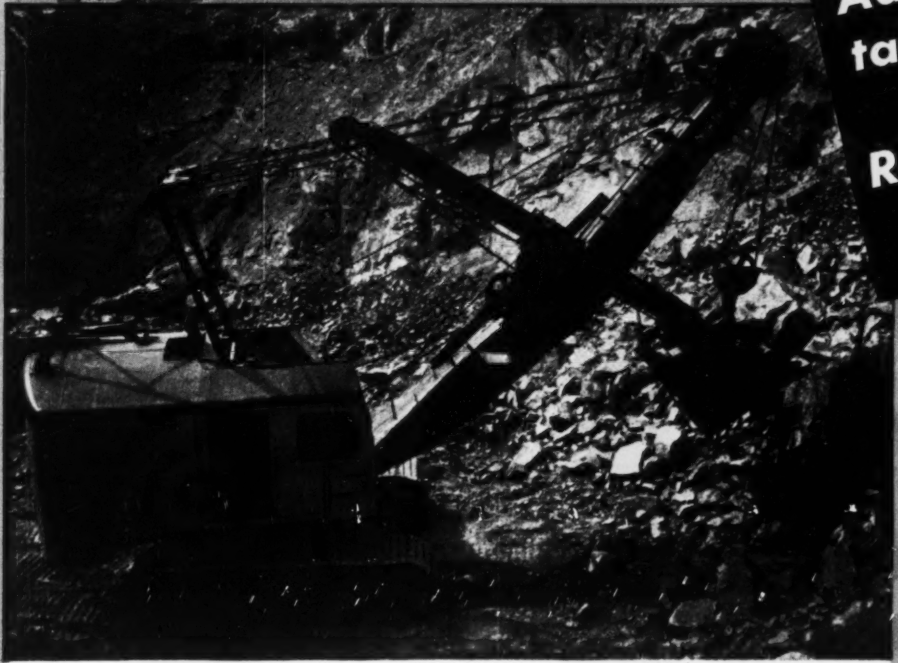
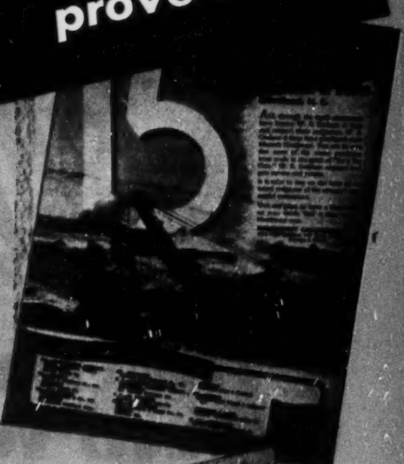
Here's Real Rock Shovel
NORTHWEST

We never get tired of telling you

Advertising can talk superiority but . . . REPEAT ORDERS prove it!





BROWN & ROOT
NORTHWEST
47

A lot of people have said to us, "Don't you get tired of running those ads with numbers in them, telling about repeat orders, year after year"? Remember this; Advertising can talk superiority but a repeat order proves it. There is no better endorsement of the performance of a piece of equipment. Remember, too, there are a lot of manufacturers that can't do this *month after month and year after year!*

A repeat order tells you better than all the type we could use that what we claim is *so.* It proves that Northwest equipment is *profitable* equipment to own and the fact that we have been able to run this type of advertising for years proves that Northwest has *maintained quality and more than kept abreast of conditions.* That, too, is why one out of every three Northwests sold is a repeat order.

NORTHWEST ENGINEERING COMPANY
1502 Field Bldg., 135 South LaSalle St., Chicago 3, Ill.

NORTHWEST

SHOVELS • CRANES • DRAGLINES • PULLSHOVELS

Successful Contractors
Stay Successful
With Proved Equipment

A
DUMP TRAILERS
A
10-75 TON CARRYALLS
A
BULK CEMENT TRAILERS
A
PLATFORMS
A

Right Combination...

FRUEHAUF TRAILERS AND YOUR JOB!

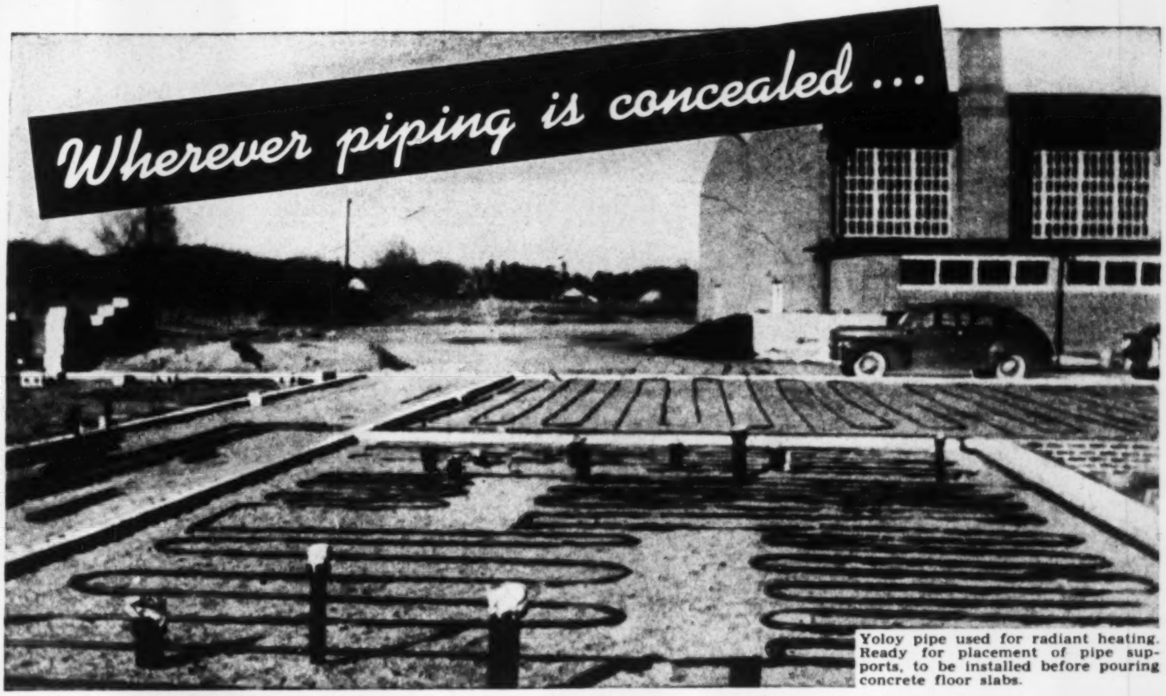
FRUEHAUF'S *COMPLETE* TRAILER LINE is your best bet for complete hauling satisfaction! Whatever the load, wherever the job—you'll find Fruehauf builds the Trailers you need, either standard or special.

And when you buy Fruehaufs, your Trailer investment is backed by America's largest, most fully equipped Trailer Service network. Factory service facilities are no farther away than the Fruehauf Branch nearby.

But perhaps even more important is Fruehauf's long experience and leadership in the field. Fruehauf, as the world's largest builder of Truck-Trailers, has successfully solved more transportation problems than any other Trailer manufacturer. That's why you'll find Fruehauf Trailers sure-fire winners on the job. Contact your Fruehauf representative for full details.

FRUEHAUF Trailers
"ENGINEERED TRANSPORTATION"

World's Largest Builder of Truck-Trailers
FRUEHAUF TRAILER COMPANY
DETROIT 32, MICHIGAN



Yoloy pipe used for radiant heating. Ready for placement of pipe supports, to be installed before pouring concrete floor slabs.

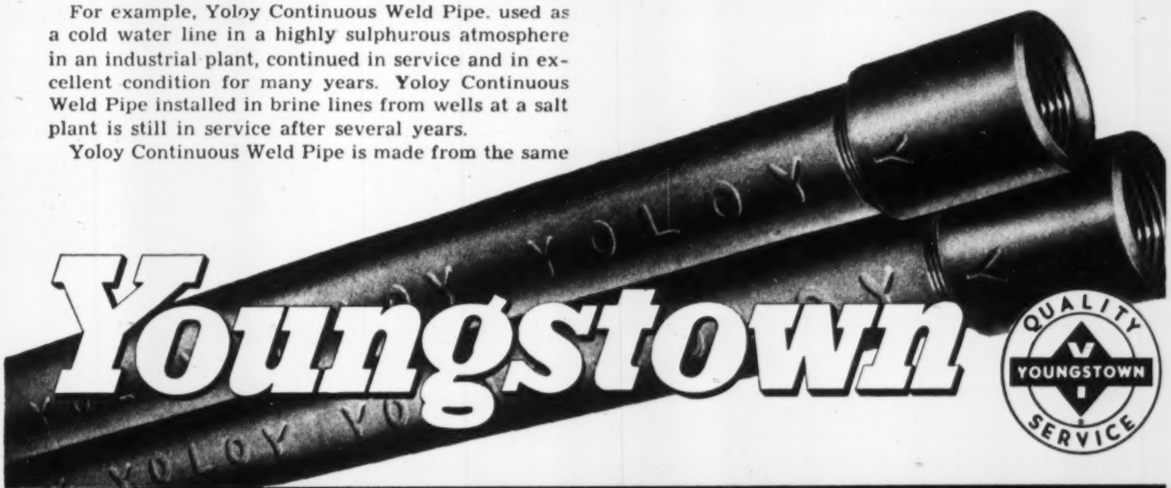
use **YOLOY** continuous weld pipe

Yoloy Continuous Weld Pipe offers distinct advantages for radiant heating and snow removal. Its use is recommended whenever piping is concealed—in industrial plants, commercial buildings, hospitals, schools and residences.

In standard tests Yoloy steel has demonstrated that its resistance to atmospheric corrosion is four to six times greater than that of regular steels. In actual installations Yoloy Pipe has demonstrated that it has a high resistance to many other corrosive conditions.

For example, Yoloy Continuous Weld Pipe. used as a cold water line in a highly sulphurous atmosphere in an industrial plant, continued in service and in excellent condition for many years. Yoloy Continuous Weld Pipe installed in brine lines from wells at a salt plant is still in service after several years.

Yoloy Continuous Weld Pipe is made from the same nickel-copper steel composition that has proved so successful in service in the oil, mining, railroad, chemical, trucking and other industries where resistance to corrosion and abrasion is of prime importance. This pipe is easy to thread and fabricate with standard pipe tools. It can be electric or gas welded readily. It has high strength and high resistance to abrasion, shock and vibration fatigue. For further information, write or phone the Youngstown District Sales Office nearest you.



THE YOUNGSTOWN SHEET AND TUBE COMPANY

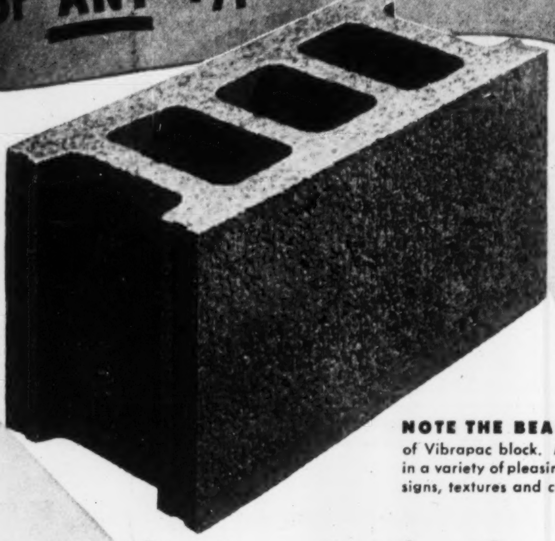
General Offices — Youngstown 1, Ohio

Manufacturers of Carbon, Alloy and Yoloy Steel

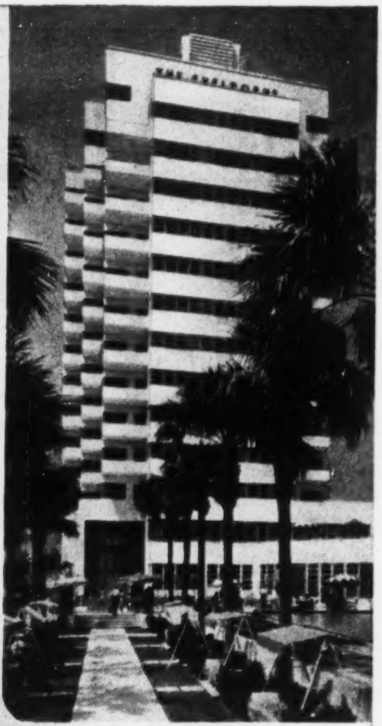
Export Office - 500 Fifth Avenue, New York

COLD FINISHED CARBON AND ALLOY BARS - ELECTROLYTIC TIN PLATE - COKE TIN PLATE - WIRE - PIPE AND TUBULAR PRODUCTS - CONDUIT - RODS - SHEETS - PLATES - BARS - RAILROAD TRACK SPIKES

CONCRETE MASONRY is the Ideal Building Material for ANY Type of Structure

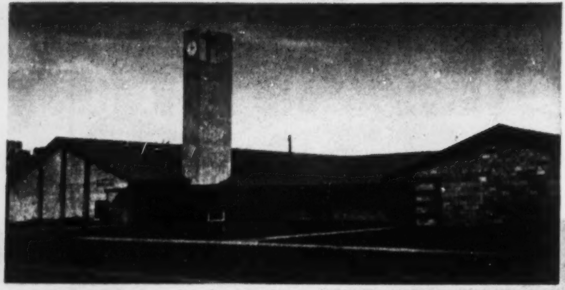


NOTE THE BEAUTY of Vibrapac block. Made in a variety of pleasing designs, textures and colors.



One of many Miami Beach hotels built with Vibrapac block.

Resists Wind and Weather... Frost and Fire Adds *Beauty* and *Permanence* at Low Cost



More and more churches are being built with Vibrapac block.

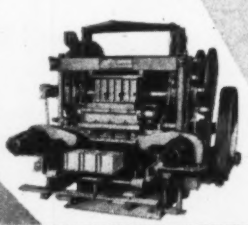
School building with interior and exterior exposed Vibrapac block.

In the full range of building construction, from a small unit to a multi-story skyscraper, you'll find that concrete masonry excels as a building material. It is armored against age, climate, fire, weather, termites, rodents, tornadoes, hurricanes and floods. The dry, sound-conditioned walls and floors promote good health and restful quiet. Owners of concrete masonry structures are assured of a low initial cost . . . minimum of upkeep . . . easier financing . . . and lower insurance rates. Get all the facts. Write today for literature and names of Vibrapac-equipped plants in your area.

BESSER MANUFACTURING CO.
ALPENA, MICHIGAN, U. S. A.

Made on a Vibrapac

All sizes of high-quality masonry units of any desired texture or density are made on a Besser Vibrapac, using one set of Plain Pallets. The Vibrapac is fully automatic. No machine operator is required.



BESSER

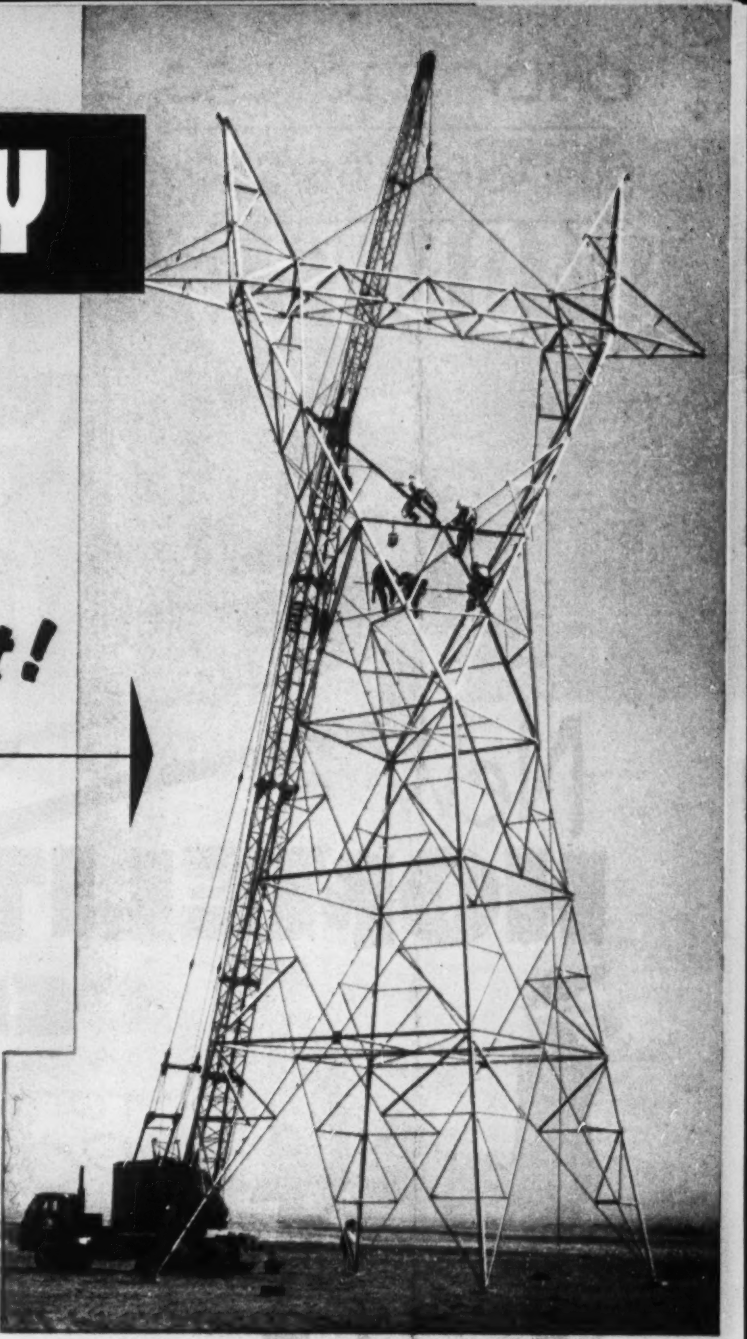
BATCH MIXERS **SKIP LOADERS** **BLOCK & BRICK CUBERS** **SUPER VIBRAPAC** **SINTERING PLANTS** **ACROW CENTERS** **ROOF TILE MACHINE**

If your jobs call for

STABILITY

P&H

has more of it!



Stability — that's it in truck crane service! It lets you put more on the hook — swing it easier with less tipping strain — greater safety. It means more work capacity, faster operation, lower costs — more all around satisfaction. Size for size, around the full 360° of rotation, no P&H Truck Crane has ever been outlifted. And remember, P&H rates capacity only at a working radius you *can* and *will* use! Ratings are actual and true . . . *not* "paper" ratings.

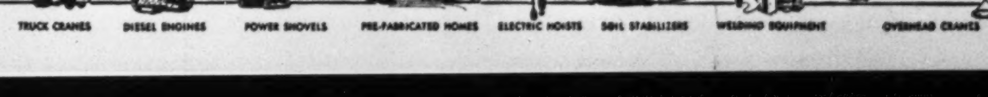
Of course you'll have all the other P&H advantages — smooth hydraulic control — planetary lowering for greater accuracy — triple safe boom hoist — live roller circle with adjustable hook rollers — dual power for travel and work. Take those for granted! Models up to 35-ton capacity.

P&H TRUCK CRANES

HARNISCHFEGER
CORPORATION
MILWAUKEE 46, WISCONSIN

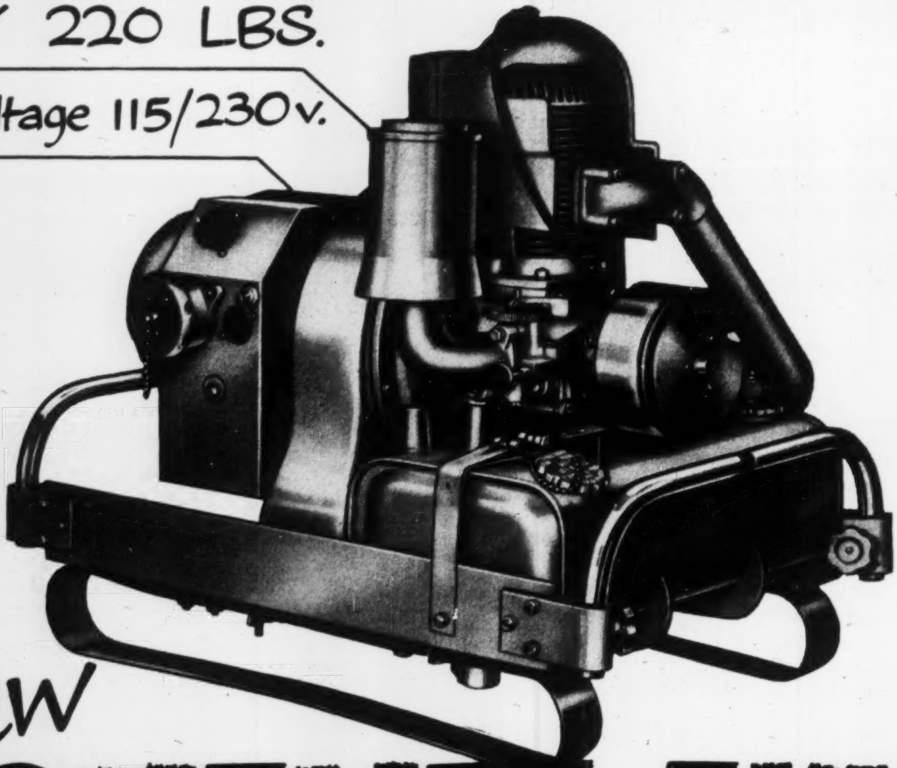
See your P&H Dealer!

the **P&H** *Line*

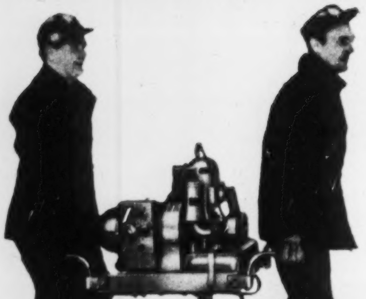

TRUCK CRANES
DIESEL ENGINES
POWER SHOVELS
PRE-FABRICATED HOMES
ELECTRIC HOISTS
SOIL STABILIZERS
WELDING EQUIPMENT
OVERHEAD CRANES

ONLY 220 LBS.

Dual Voltage 115/230v.



New HOMELITE 5KW GENERATOR for OPERATING POWER TOOLS



The New Homelite 5 KW Generator weighs only 220 pounds, complete with gasoline engine. Equipped with adjustable handles for easy carrying by 2 or 4 men.

Here is a new Homelite Generator that measures up to all the requirements for greatest efficiency with power tool operations. It's small, compact . . . light enough for two or four men to carry . . . and it gives you both 115 and 230 volt current up to its conservatively rated 5,000 watt capacity. With this new generator you can have all the power you need to operate light or heavy power tools any place you need it. You can operate electric saws, grinders, drills, routers, sanders, table or radial saws . . . with no drain on the generator or the efficiency of your tools.

You can operate these tools, or floodlights, when you need them, any place without worry over your power supply.

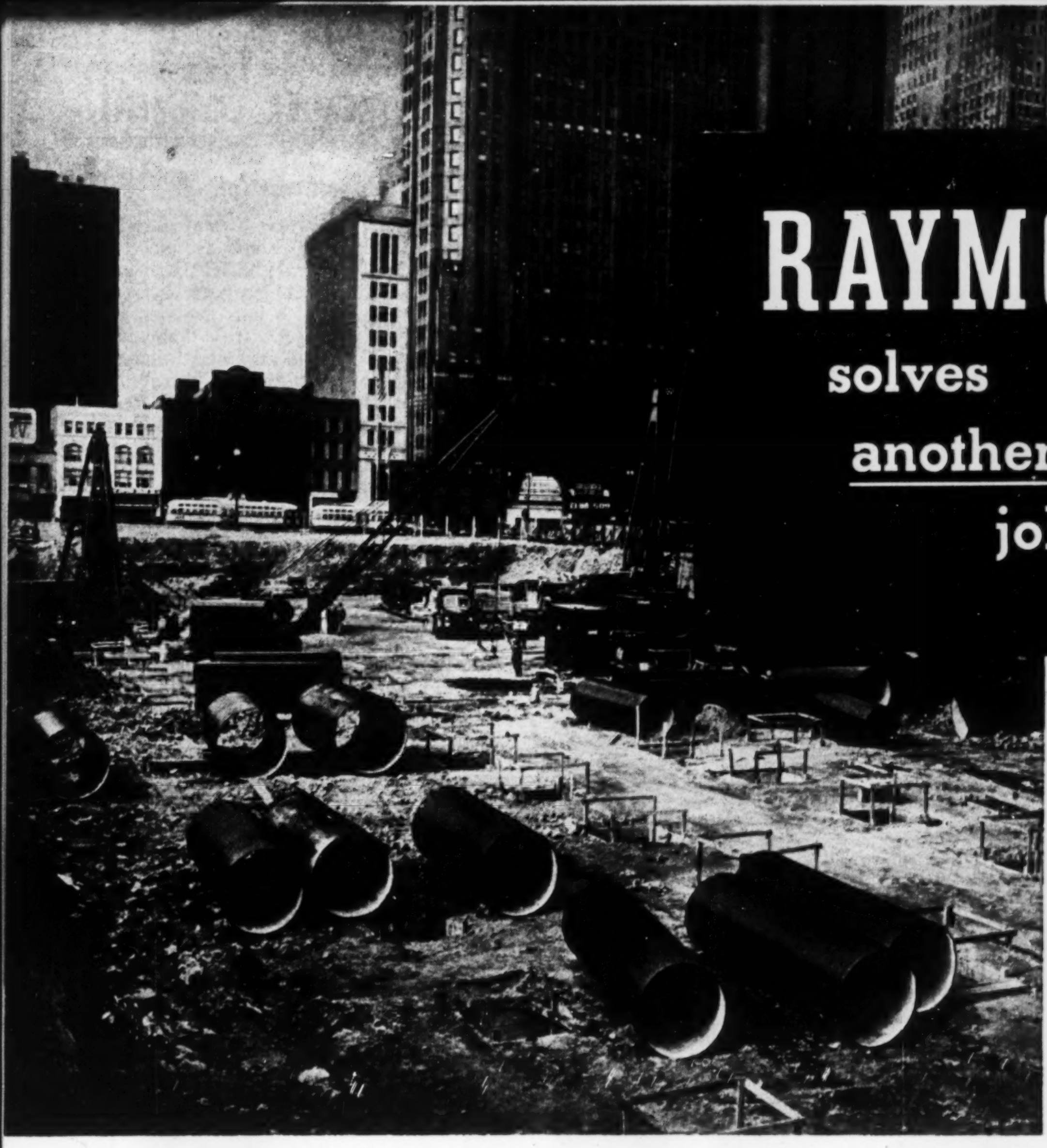
Write, for complete information on this new, rugged, dependable, high-powered Homelite Generator, today.

Manufacturers of Homelite
Carryable Pumps • Generators
Blowers • Chain Saws

Canadian Distributors: Terry Machinery Co., Ltd.,
Toronto, Montreal, Vancouver, Quebec.

PERFORMANCE • DEPENDABILITY • SERVICE

HOMELITE
CORPORATION
1105 RIVERDALE AVENUE • PORT CHESTER, N. Y.



at left
Sinking Gow caissons
for Detroit's
City-County Building

FOUNDATION CONTRACTOR:
O. W. Burke Co.

ARCHITECTS & ENGINEERS:
Harley, Ellington
& Day, Inc.

CONSTRUCTED FOR:
Detroit-Wayne
Joint Building
Authority

. . . **To provide** the foundation for the City-County Building in Detroit's new Civic Center, Raymond placed 126 Gow caissons, with diameters of 48 to 74 inches, to depths exceeding 100 feet to hardpan. The caissons were belled out on the hardpan to varying diameters. Completion of this project ahead of schedule is another example of how Raymond engineers combine knowledge and experience with specially designed equipment to provide any type foundation anywhere. We would like to serve you on your next project.

RAYMOND CONCRETE PILE CO.

140 CEDAR STREET • NEW YORK 6, N. Y.

BRANCH OFFICES IN THE PRINCIPAL CITIES OF UNITED STATES AND CENTRAL AND SOUTH AMERICA

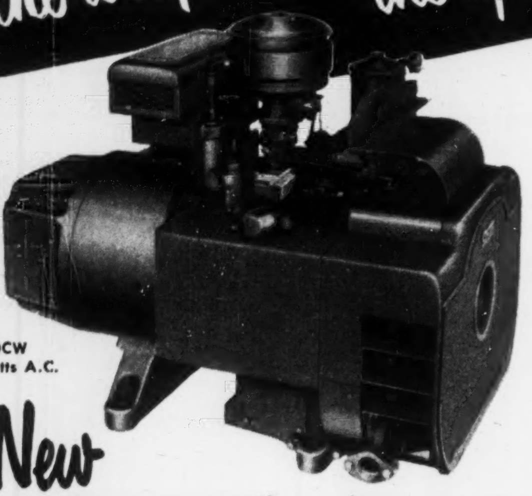
AROUND THE WORLD · FOUNDED 1897

THE SCOPE OF
RAYMOND'S ACTIVITIES . . .

Foundation Construction . . . Harbor and Waterfront Improvements . . . Soil Investigations . . . In-Place Pipe Lining . . . Specialized Construction.

10,000 WATTS A.C.

with half the weight! in half the space!



MODEL 10CW
10,000 watts A.C.

the New
ONAN "10 CW" Electric Plant

Check these advantages!

- ★ High capacity for big jobs.
- ★ Twin-cylinder, horizontally-opposed, air-cooled, alternate-firing engine.
- ★ Aluminum-alloy cylinder heads.
- ★ Extra-large, replaceable bearings.
- ★ Full-pressure lubrication, 6-quart oil capacity, oil filter.
- ★ Impulse-coupled, high-tension magneto ignition; radio suppressed.
- ★ Quiet, vacuum air cooling of generator and engine.
- ★ Excellent accessibility; snap-off housings.
- ★ Extremely quiet running.
- ★ High performance generators.
- ★ Completely equipped with controls and instruments.

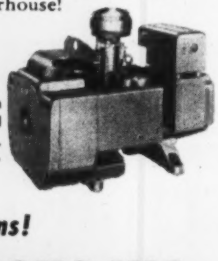
Costs less than any other complete electric plant!

You can't match it anywhere in performance, equipment or value. The sensational new Onan *10CW* gives you everything you've wanted in an electric plant plus exceptional mobility for a unit of its capacity.

On large construction jobs, where wattage requirements for power tools are high, or where floodlighting of extensive work areas is essential, the Onan *10CW* delivers all the electric power you need.

Before you buy another electric plant for any purpose, take a good look at this new low-cost powerhouse!

Model 5CW
5,000 watts
Same advanced design as the 10CW with all its exclusive advantages. Built for heavy duty, economical operation.



Write for Detailed Specifications!

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

5740 University S.E., Minneapolis 14, Minnesota

READER COMMENT

Poor soil-test rulings

Sir: The article on soil tests for the Elmhurst General Hospital (ENR April 16, p. 51) misses the main point of the story. The larger test area proved the value of 6 tons per sq ft for the soil because it settled more than the smaller test area under the same unit pressure. This is entirely in accordance with present day agreement (on a statistical basis) on settlement of various sized footings under the same average unit load. The difficulty is with the literal interpretation of the provision in the New York City Code. To quote it completely:

"Sect. C26-379.0. Determination of Results of Soil Test—The test shall be considered unsatisfactory and the result unacceptable if the proposed safe load shows more than ¾ in. settlement, or the increment of settlement obtained under the 50% overload exceeds 60% of the settlement obtained under the proposed load."

So that if no settlement is found under the proposed safe load, any settlement, no matter how small, obtained under the overload, being more than 60% of zero, proves the test unsatisfactory. This ruling has actually been made, practically speaking, on several tests where the soil shows little settlement under the desired load.

In one recent series of tests, on 2-ft square pads, on soil very similar to that found at the Elmhurst General Hospital, the following results were obtained:

Test No. 1

Load—Tons per Sq Ft	Settlement—Inches
4	0.095
6	0.173
Unloaded	Net 0.112

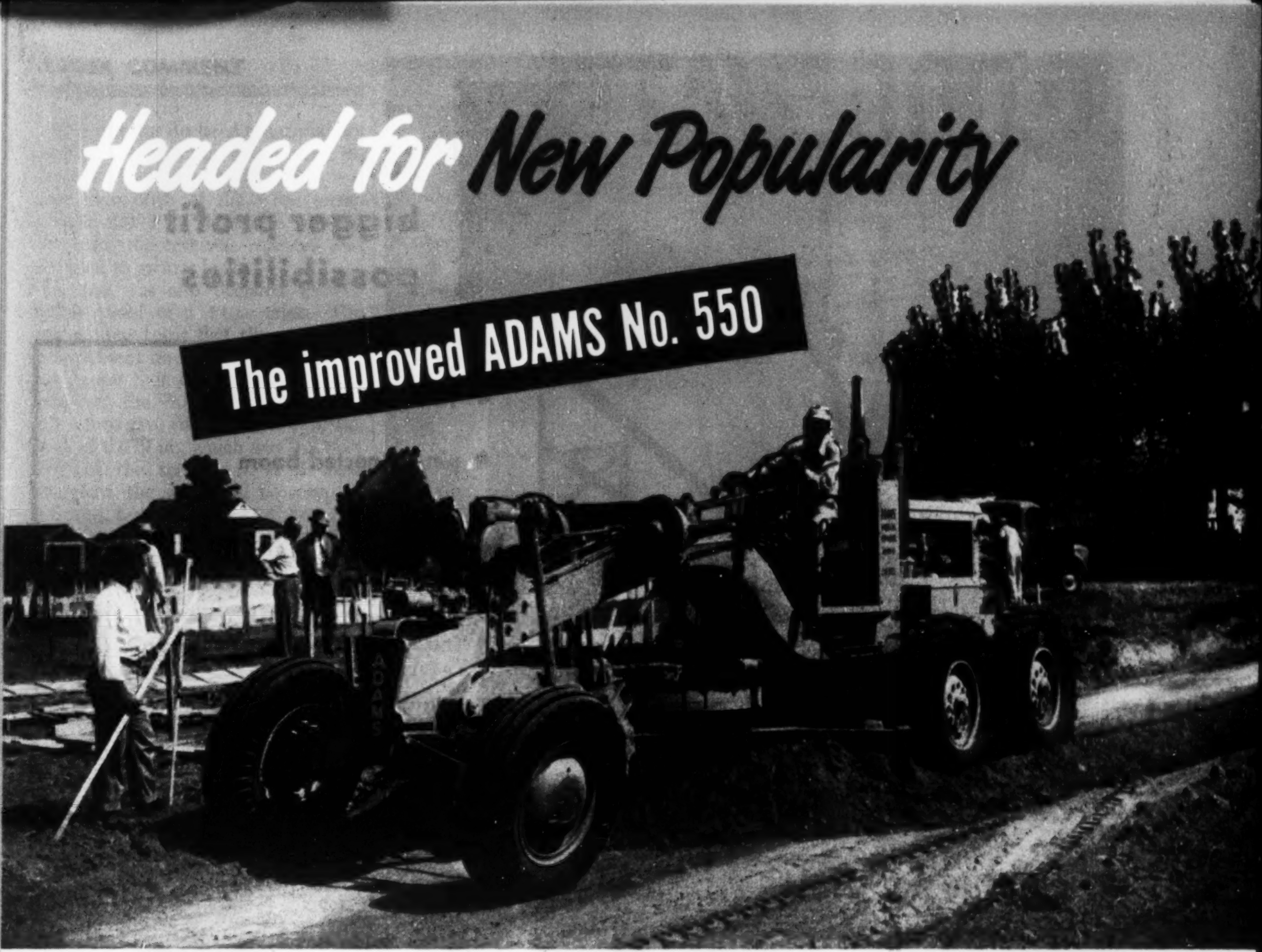
Test No. 2

Load—Tons per Sq Ft	Settlement—Inches
4	0.070
6	0.155
7	0.155
8	0.162
9	0.234
8	0.232
7	0.227
6	0.225
5	0.223
4	0.217
3	0.215
2	0.205
1	0.191
Unloaded	Net 0.142

(*Continued on page 13*)

Headed for New Popularity

The improved ADAMS No. 550



A Heavy-Duty 100 H.P. Grader with New Constant-Mesh Transmission

You have only to check the new and improved features that characterize the Adams No. 550 Motor Grader to know that here is one of the most efficient and versatile machines you can possibly own:

- **Powerful Diesel Engine:** Lots of lugging ability—easy to start—economical, dependable . . . Rubber mounted for vibration-free operation.

NEW **Constant-Mesh Transmission:** Quick, easy gear shifts . . . Helical gears—all on roller bearings—insure smooth, long-life performance . . . Finest transmission ever put into a motor grader.

- **8 Forward Speeds:** More working speeds and a higher travel speed (25 mph) than other graders . . . Save time—increase work production.

NEW **4 Reverse Speeds:** Up to 13.2 mph . . . Speed work on many jobs—backing between forms, bucking snow, etc.

NEW **"Creeper" Gears:** Optional in transmission at nominal cost . . . Provide 3 extra-low speeds—.22 to 1.76 mph . . . Valuable where slow-speed operation is desirable.

- **Positive, Easy-Working Controls:** Dependable, accurate adjustments—easy, natural steering.
- **Big, Comfortable Cab:** Roomy convenience for maximum operator efficiency—2-way adjustable seat.

NEW **Double-Action Braking System:** Operates on wheels and transmission—quick, safe stops with less pedal effort.

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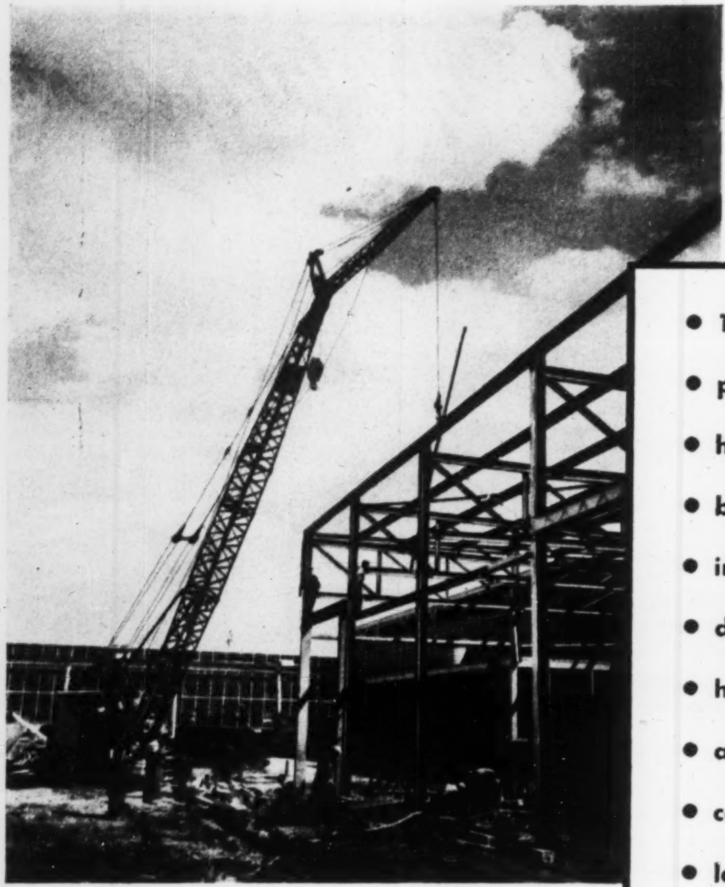

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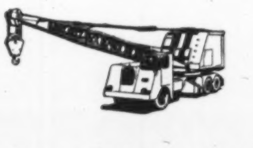
BAY CITY



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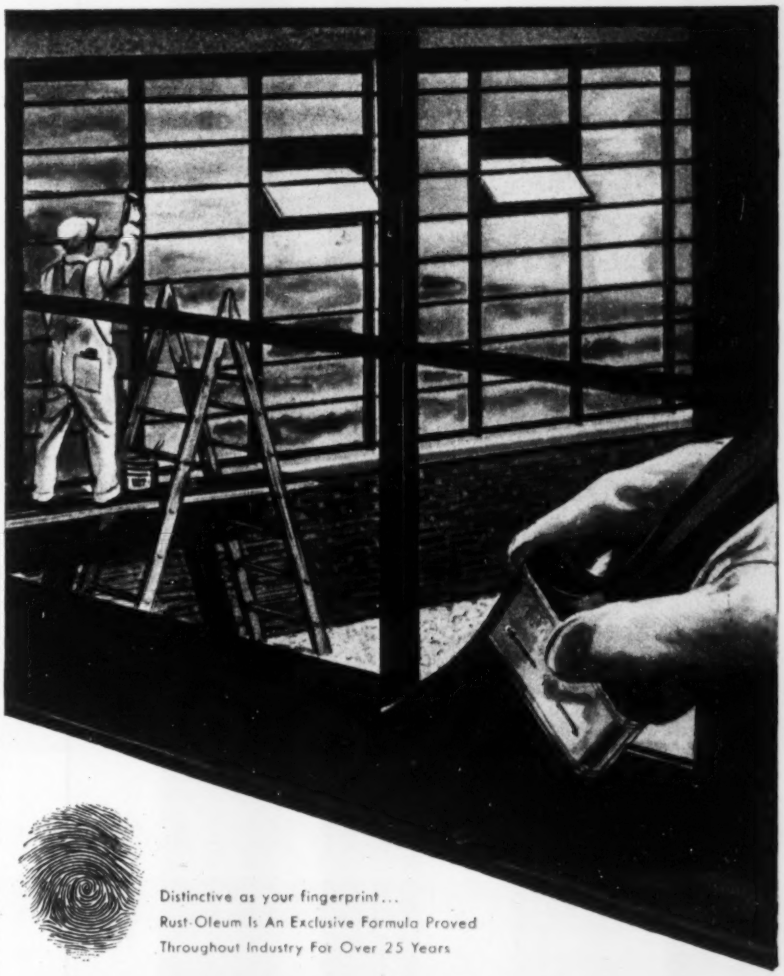
This test was declared unsatisfactory proof of a 4-ton value because the increment of settlement (0.078 in.) was more than 60% of the 4-ton settlement of 0.095 in. Then, on an adjacent area, the test was repeated and extended to greater loads:
This test was also declared unsatisfactory proof of a 4-ton value. The reason offered was that the increment of settlement under 6 tons (0.085 in.) was greater than 60% of 0.070. Nevertheless, the 50% load increment over 6 tons gave an increment of settlement of 0.079 in., which was less than 60% of the settlement at 6 tons. Therefore, the soil could be accepted at 6 tons, but not at 4 tons! Actually, the value approved was only 3 tons because of the results obtained in the first test.

This state of affairs was discussed in the committee on rewriting the pile sections of the New York City Code and a more rational formula for acceptability was written in the revised pile code.

The error is in interpretation. The code requirement is based on the assumption that soils show a straight-line variation between settlement and unit load up to a certain value, beyond which load settlement increases at a more rapid rate. The attempt is to restrict the safe load to about ⅔ of the load corresponding to this "yield point." Certainly, if the analogy is to be carried to a logical conclusion, any load below the maximum so indicated should be considered a safe load.

Checking the building codes readily available, the New York formula is also used in Syracuse, N. Y.; Buffalo, N. Y.; Philadelphia; the National Building Code, and by the 1953 American Standard Building Code Requirements for Excavations and Foundations (sponsored by the American Society of Civil Engineers). All these, and such others that carry the same formula, should be modified or voided. The southern areas seem to agree on acceptance when the test area under double the desired load shows no additional settlement for a period not less than 48 hours. This is found in the Dallas Code, the Southern Standard Code, and the Pacific Coast Building Officials Conference Uniform Building Code. The preparation of a curve of relationship with the safe value at one-half of the load at which linear relationship no longer holds is required by Ft. Worth, and at one-third of that value by Chicago. The New Haven and District of Columbia codes describe tests for soil evaluation but give no formula for criteria of acceptance of the desired loads.



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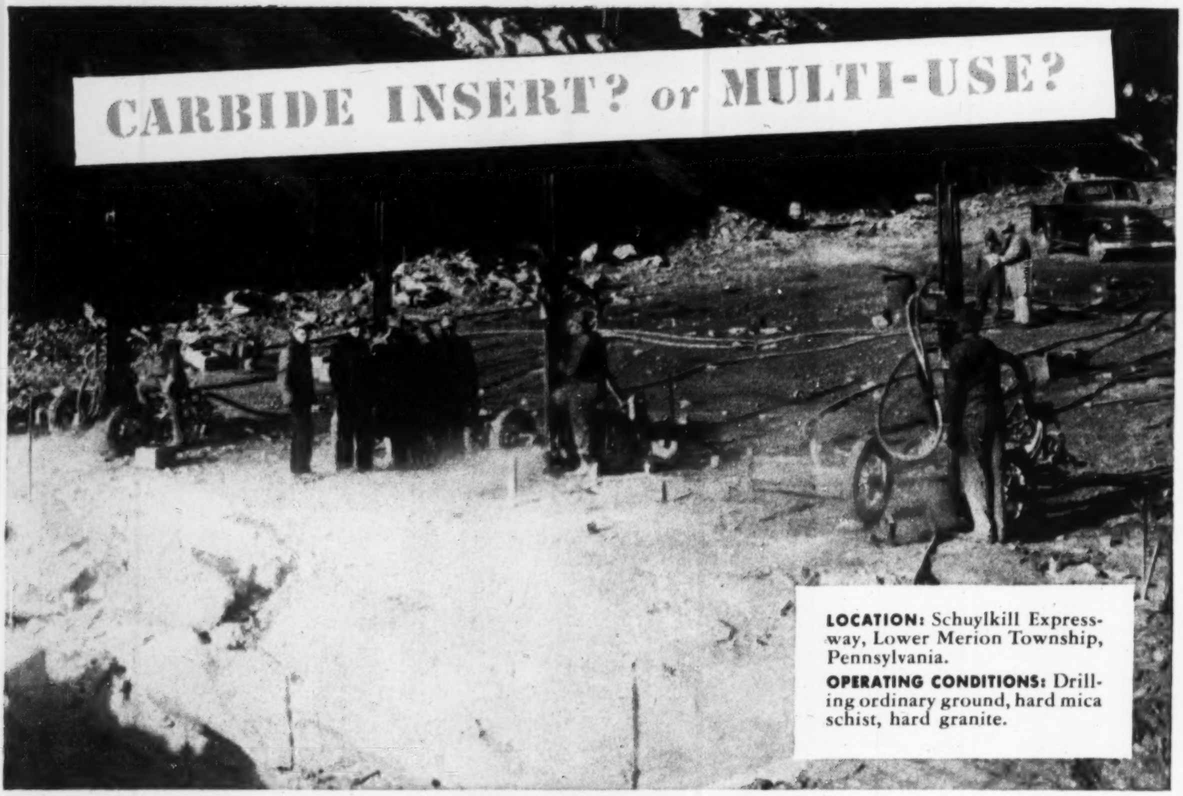

LOCATION: Schuylkill Expressway, Lower Merion Township, Pennsylvania.

OPERATING CONDITIONS: Drilling ordinary ground, hard mica schist, hard granite.

Why Talbott-Myers Construction Corp. used both TIMKEN® multi-use and carbide insert bits on new expressway

TALBOTT-MYERS Construction Corporation, Winchester, Kentucky, have tested all makes of rock bits, but when it came to excavating 873,000 cubic yards of rock for Pennsylvania's new Schuylkill Expressway, Timken® interchangeable multi-use and carbide insert bits were picked for the job.

Timken multi-use bits are the most economical for ordinary ground. With correct and controlled reconditioning, they give lowest cost per foot of hole when full increments of steel can be drilled.

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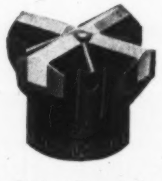
Timken threaded multi-use rock bit



Timken threaded carbide insert rock bit

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All in all, this whole matter seems to require codification. It is too bad that the 1953 code approved by the American Standards Association did not clear up this question.

JACOB FELD
Consulting Engineer
New York, N. Y.

Biggest airstrip

Sir: My respect for the accuracy of your news pages is such that I feel impelled to draw to your attention a seeming contradiction.

On page 19 of your issue for Feb. 12 last you recorded the calling of bids for what you described as "without doubt the biggest flying strip in the world," a concrete strip 15,000 ft long, 300 ft wide, at Edwards Air Force Base in the Mojave Desert. But on page 8 of your issue for June 14, 1951, you recorded the start of work on the new airstrip at Uplands Airport, Ottawa, which is to be 25,000 ft long if only 200 ft wide. Admittedly the Ottawa strip is scheduled to be built in sections but we in Canada have so few opportunities for following the Texan tradition that I venture to suggest that there may be eventually some doubt about this matter of the biggest airstrip when both jobs are complete.

R. F. LEGGET
Ottawa, Ont.

CALENDAR

American Water Works Association, annual meeting, Municipal Auditorium, Grand Rapids, Mich., May 10-15.

Rail Steel Bar Association, annual meeting, Greenbriar Hotel, White Sulphur Springs, W. Va., May 11-13.

Conference on instrumentation in water, sewage and industrial waste treatment, Manhattan College, N. Y. City, May 14.

Annual Northwest Traffic Engineering Conference and Western section of Institute of Traffic Engineers, More Hall, University of Washington, Seattle, May 21-22.

Society of Fire Protection Engineers, Palmer House, Chicago, May 21.

Society for Experimental Stress Analysis, Hotel Schroeder, Milwaukee, Wis., May 20-22.

American Society of Civil Engineers, spring meeting, Casablanca Hotel, Miami Beach, Fla., June 15-19.

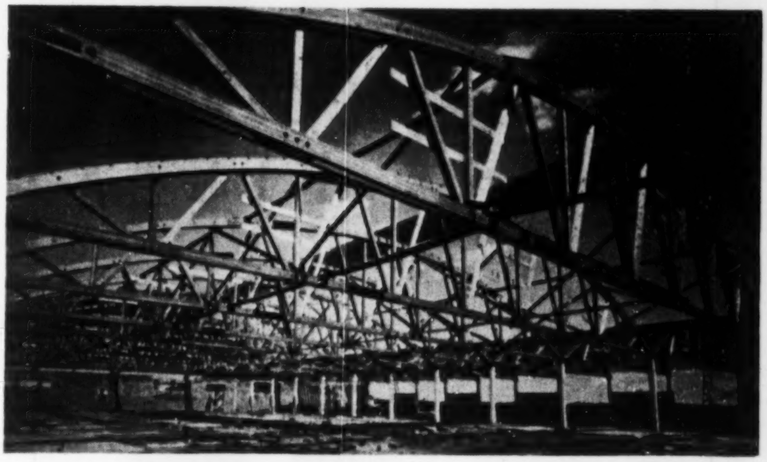
National Society of Professional Engineers, Sheraton Beach Hotel, Daytona Beach, Fla., June 18-20.

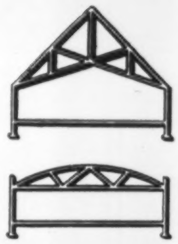
American Society for Engineering Education, annual meeting, University of Florida, Gainesville, June 22-26.

Conference on modern highways, Massachusetts Institute of Technology, Cambridge, Mass., June 23-25.

American Society for Testing Materials, annual meeting, Chalfonte-Haddon Hall Hotel, Atlantic City, N. J., June 28-July 3.

Summer program in Advanced Strength of Materials, M.I.T., Cambridge, Mass., July 6-17.





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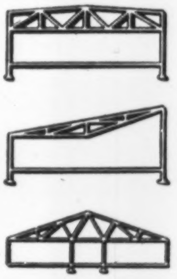

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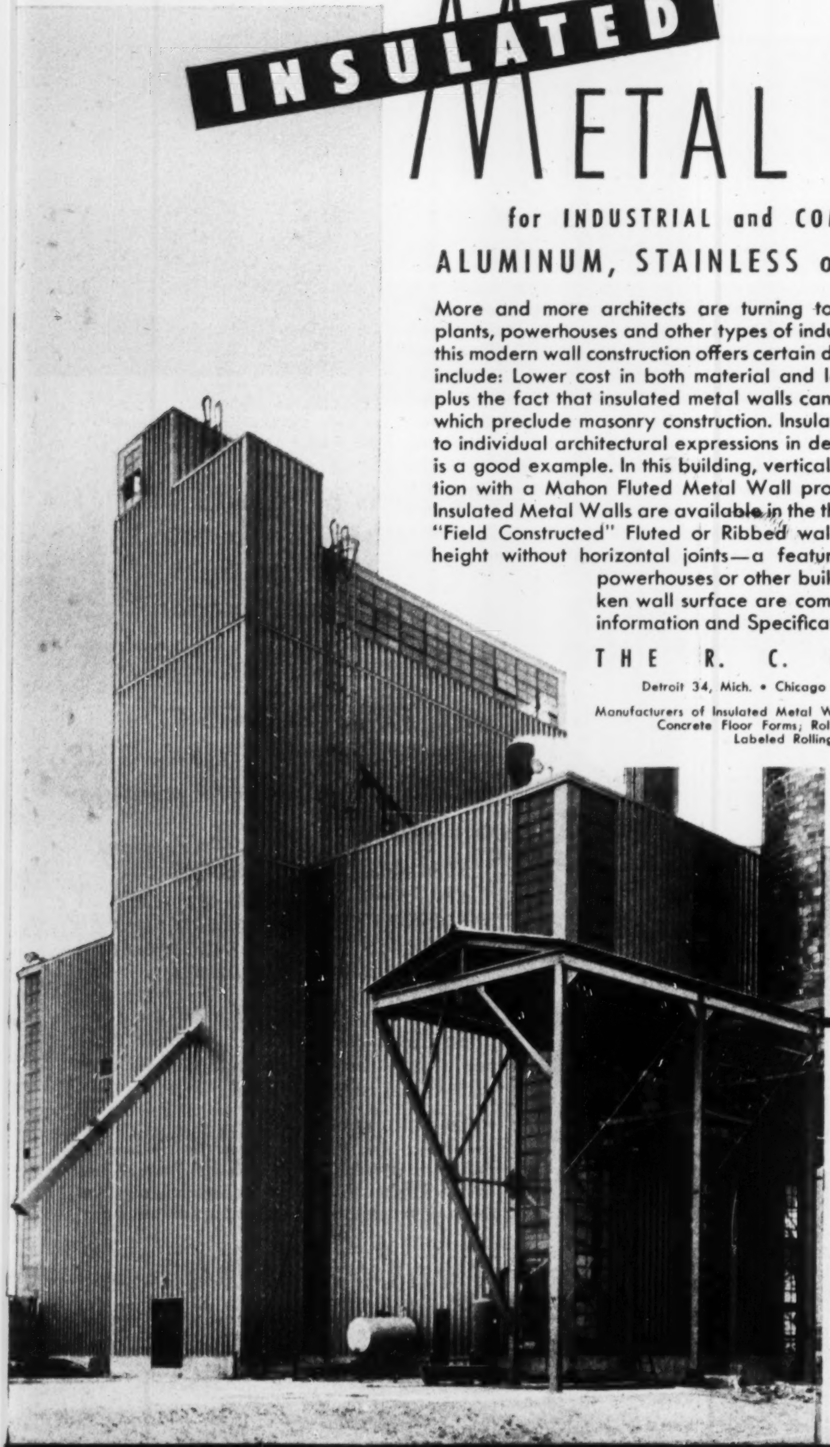

More and more architects are turning to insulated metal walls for industrial plants, powerhouses and other types of industrial and commercial buildings where this modern wall construction offers certain definite advantages. These advantages include: Lower cost in both material and labor, reduction in construction time—plus the fact that insulated metal walls can be erected under weather conditions which preclude masonry construction. Insulated Metal Walls also lend themselves to individual architectural expressions in design—the powerhouse illustrated here is a good example. In this building, vertical panels of continuous sash in combination with a Mahon Fluted Metal Wall produces a striking appearance. Mahon Insulated Metal Walls are available in the three patterns shown below. The Mahon "Field Constructed" Fluted or Ribbed wall can be erected up to sixty feet in height without horizontal joints—a feature which is particularly desirable in powerhouses or other buildings where high expanses of unbroken wall surface are common. See Sweet's Files for complete information and Specifications, or write for Catalog No. B-53-B.

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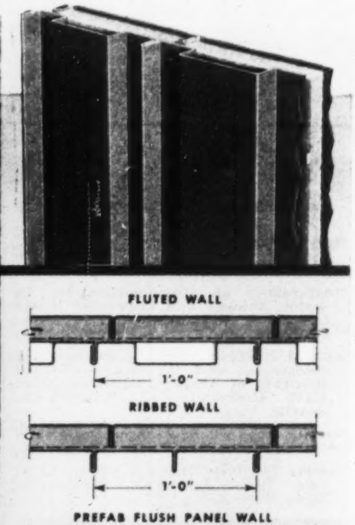
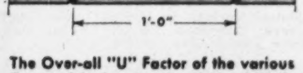
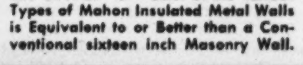


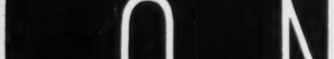
FLUTED WALL



RIBBED WALL



PREFAB FLUSH PANEL WALL



The Over-all "U" Factor of the various Types of Mahon Insulated Metal Walls is Equivalent to or Better than a Conventional sixteen inch Masonry Wall.

MAHON

THE CONSTRUCTION WEEK

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- **Hopeful sign**—Although the attempt to rewrite Connecticut law to permit corporate practice of engineering wound up (as it did in New York, see ENR March 26, p. 24) with withdrawal of the proposed amendment—the skirmish ended on a hopeful note:

  Proponents agreed to drop the amendment, with the understanding that all interested parties would get together to work out a mutually acceptable bill.

  Sponsored by virtually the same group of corporations which attempted to change New York State prohibitions against corporate practice, the Connecticut amendment, would have provided that "all persons in responsible charge of engineering practice in the state; and at least two officers—one of whom shall be the chief executive officer in charge of the corporation's practice of engineerin the state" be licensed professional engineers.

  Representatives of the Connecticut Technical Council (made up of 13 technical groups) held several meetings with the corporate group, agreed to more.

- **Priest Rapids**—Private—you haven't heard the last of proposals for the $360-million-or-so Priest Rapids Dam and hydro plant on the Columbia River.

  First a cause of a battle between public utility districts and federal agencies, then a target of criticism by the AEC (which believed its Hanford, Wash., works would be menaced should the dam be breached)—the project is now back in the legislative stage.

  Congress this week is considering two bills (House and Senate) to authorize the project in such a way that it can be built and financed by a non-federal agency (the Grant County, Washington, Public Utility District).

- **Oahe still fighting**—The running fight over plans for the $326-million Oahe Dam on the Missouri River isn't over by a long shot either—even though economy-minded Republicans had chopped it out of budget proposals.

  The matter will come up in hearings to start May 13 before the House Civil Functions Subcommittee.

  One of the mainstem dams in the Missouri Basin plan, Oahe was to be a multi-purpose structure, and it has now reached about 5% completion—$16 million worth to date. Truman budgeted $14.8 million to carry on, Eisenhower budgeted exactly nothing. Opponents charge it would flood valuable farmland to little advantage; backers claim it is vital to operation of Fort Randall Dam, further downstream.

- **Coal belt, again**—Another thing that isn't nearly dead yet is that proposal for a 100-mi belt conveyor to carry coal from the Ohio River to Lake Erie (near Cleveland) and iron ore back to the Pittsburgh area.

  Twice bottled up in the Ohio legislature, there is no new bill before the lawmakers now, but hints that there will be one are contained in a recent announcement by H. B. Stewart, Jr., president of Riverlake Belt Conveyor Lines (which wants to build the system).

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WASHINGTON OBSERVER

Construction will be affected by reorganization at the Pentagon. Eisenhower's proposal is to build up the authority and the staff of the Secretary of Defense: There'll be six new Assistant Secretaries of Defense—one of whom will be the head man on construction. His title: Assistant Secretary for Properties and Installations.

This secretary will have a head start on his job when he's finally appointed, because Congress last year saw the need for such a job—and created the post of Director of Installations to report directly to the Secretary on all military construction. This is what Frank Creedon has been doing since last August.

•

The new Assistant Secretary will have an even tighter rein over service construction outfits such as Navy's Yards and Docks and Army's Corps of Engineers. He'll be in the construction chain of command with authority from Secretary Wilson—where the present Director of Installations is advisory only.

The new job has about the same specifications as Creedon's—to review plans and construction of all public works projects; maintain a complete inventory of facilities and their utilization; develop policies and procedures on requirements; develop design criteria and construction standards.

Creedon has made his mark in the job. Uniform standards are about ready for barracks, mess halls, BOQ's, and warehouses. He's put together for the first time an intelligible picture of Defense Department construction. He's been supervising the unfreezing of projects less than 20% completed—and the guessing is that savings of perhaps $300 million to $500 million can be made.

•

No one knows for sure whether Creedon will be asked to stay on when the reorganization becomes effective June 30. Wilson, when he first came in, asked Creedon to stay. Since then, though, Deputy Secretary Roger Kyes has struck out hard at all holdovers from the Truman Administration: Kyes said only half a dozen of the top men in the Pentagon are big enough to fill their big jobs.

Guessing is that a new man from industry will be brought in as Kyes and Wilson have indicated. They're plugging for a new team of industrialists to take charge.

•

Water fluoridation is expanding by leaps and bounds. U. S. Public Health Service's most recent check shows 730 cities and towns have treated their water supplies, almost as many more are getting ready to do so. Incidentally, note the current issue of the Journal of the American Dental Association. It says: "Safety and effectiveness of fluoridation have been established substantially."

•

Opposition to the St. Lawrence Seaway is focusing in the House Committee on Public Works. Twenty-one of the 29 committee members have blocked Chairman Dondero's plans to begin hearings on U. S. participation with Canada to build the seaway. That's a significant measure of the House's opposition. Dondero won't begin consideration now until the Senate acts.

•

AFL leaders are worried over the trend to give state labor laws more jurisdiction. The Smith bill is gaining strength in the Senate Labor Committee and the Lucas bill giving state laws equal standing with Taft-Hartley has good backing in the House.

Thirteen states have laws that would limit building trades unions in requiring craftsmen to join up. They are the so-called "right to work" laws that both the Smith and Lucas proposals would recognize.

VETERANS HOSPITAL USES ECONOMICAL FIREPROOF DESIGN

John Moses Veterans Administration Hospital, Minot, North Dakota. Designer: U. S. Corps of Engineers. Contractor: McGough Bros., St. Paul, Minn.

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Waterworks contracts exceed $88 million in four months

Waterworks contracts awarded in the first four months of this year have established a new record dollarwise. They amounted to $88.5 million, up 6% over the same period in '52.

ENR reports also indicate that potential work is piling up faster than last year. In the first quarter, proposed waterworks projects estimated to cost $62.5 million were reported. This is 18% higher than for the same period last year.

• **South and West lead**—About 80% of the contract awards so far this year have been for projects in the South and states west of the Mississippi, reflecting a compelling demand for municipal facilities to cope with increased industrialization and population.

Home building, always a bellwether for waterworks construction, is headed for another record year. And, greater use of home appliances is helping to boost domestic water consumption.

Industrial building activity, also moving at a brisk pace, likewise is raising per capita water use. (Perhaps five out of six industrial plants buy their supplies from waterworks.)

Better availability of materials as a result of the federal government's decontrol measures is stimulating the upswing in starts and proposed work.

• **Awards got slow start**—In the first two months of this year, waterworks contract awards were lagging 21% behind the '52 rate for January and February. But March awards were up 18% and April showed a 59% gain.

Regions chiefly responsible for the sharp increase were the Far West—up 52%, and the South—51% ahead of last year. Although awards are off 13% from last year, the dollar volume of waterworks contracts was highest—$26.8 million—in states between the Mississippi River and the Rockies.

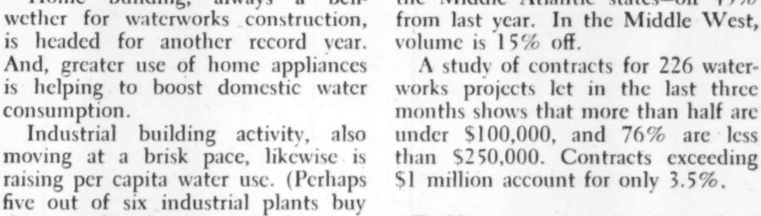
Volume of contract awards in New England is about double but dollar value is small, about $2.9 million. There was a big drop in awards in the Middle Atlantic states—off 43% from last year. In the Middle West, volume is 15% off.

A study of contracts for 226 waterworks projects let in the last three months shows that more than half are under $100,000, and 76% are less than $250,000. Contracts exceeding $1 million account for only 3.5%.

• **Backlog mounting**—At the end of March, ENR reports indicated a total backlog in waterworks projects of over $1.5 billion. This is $120 million above the backlog figure at the end of March '52. It's 3.6 times the dollar increase for the preceding 12 months.

The South and states west of the Mississippi accounted principally for the increased backlog, as has been true for the preceding 12 months. Thus, in those areas new work is being proposed faster than projects are moving out of the backlog.

The backlog in the Far West is down a little because of the high rate of contract awards. There is little change in the Middle Atlantic, New England and Middle West regions where new work is being proposed at about the same rate as projects are reaching the award stage. In those areas, contract volume is expected to remain at about its present level.



WATERWORKS CONTRACTS rise sharply in March and April . . . setting all-time high of $88.5 million for first 18 weeks of '53.

Interest rates

Builders hope for better VA, FHA loan market

Permissible interest rates on VA-guaranteed and FHA-insured mortgages went up last week to a new ceiling of 4½%. The increase was ½% for VA and ¼% for FHA mortgages.

Builders and lenders counted on the higher rates to revive the market for VA and FHA loans. Flow of money for these types of mortgages—particularly for VA 4% loans—had dried up quickly after the Treasury a month ago announced its 3¼% rate for long-term bonds.

Increased interest rates for guaranteed and insured mortgages put these loans back into competition with government bonds and other kinds of investment. Even before the Treasury announcement of April 8, VA mortgages were reported selling at discounts of from 2% to as much as 8% of par in many parts of the country, and money for new VA mortgages was hard to find even in the Northeast and in those Midwest cities where some institutions were still making loans at par.

• **VA unwilling partner**—FHA 4¼% mortgages were in a better position. They were selling at discounts in parts of the country, but the discount ordinarily was no more than about ½%. At that time, money could be obtained with some difficulty for new FHA mortgages.

But the higher Treasury rate choked

off the money supply for new FHA and VA mortgages. Lenders marked time while waiting for a government decision on higher rates. Administrator Albert M. Cole of the Housing and Home Finance Agency had come out openly for a rate increase. The Administration favored it.

But the Veterans Administration and its chief, Gen. Carl R. Gray, Jr., blocked the move. Cole and his FHA commissioner, Guy Hollyday, were ready to step up the FHA rate without concurrent action by HFFA, if necessary. Logic demanded that the two rates go up together. Last week, the White House brought Gray into line.

• Immediate impact unlikely—Homebuilders estimated that it will take three or four weeks to break the bottleneck in the money supply for VA and FHA loans. There was still a fear that lenders in some parts of the country might try to get VA mortgages at less than par.

Some lenders were more optimistic. Charles L. Clements, president of the U.S. Savings and Loan League, predicted that the increased interest rates would bring forth sufficient financing to permit builders to start 1,200,000 new dwelling units this year. In 1952, builders started 1,131,500 units.

However, early indications are that there won't be any immediate rush by most lenders to lend on government-guaranteed mortgages, now that rates are higher.

A number of mortgage loans which had been held up pending clarification of the rate picture will go through. But life insurance companies say that already they have pretty much set their quotas of mortgage investments for this year. Some of them indicate that any increase in investment in government-guaranteed mortgages this year will mean less lending on conventionals. Later on, of course, they may loosen up.

• Bonds also going up—Bankers say that because of the rate boost they may very well increase their investment in mortgages over coming months. But they point out that mortgages are competitive with bonds. And interest rates on bonds are going higher, too. Last week, for instance, a high-grade utility sold a new bond issue at 3.75%. A few weeks ago, comparable new issues were selling at 3.40%. Furthermore, a flood of new corporate and municipal bond issues is coming to market in the next few months.

Where commercial banks are concerned, there's still another factor. Commercial banks in leading cities last week boosted by ¼% the rate at which they'll lend short-term money to blue-ribbon borrowers. That boosts the cost of other kinds of bank money—including construction loans. The fact that they can get 3¼% and more for a short-term loan—and have their money available again within a few months to take advantage of investment opportunities in case interest rates should go higher—makes commercial banks less interested in tying up money for 20 years at 4½%.

Federal highway aid funds reduced

Federal highway funds were cut $55.5 million in a 1954 money bill reported to the House last week by its Appropriations Committee. The cut amounts to more than 9% of the $594 million requested in the Truman budget.

Only $25.5 million of the reduction represents a real cutback in 1954 roadbuilding. The other $30 million comes from a revised bookkeeping estimate of the cash the federal government will have to pay out to the states next year in highway aid. A saving is shown by reducing the estimate to $510-million from the $540-million Truman figure.

There will be no slowdown of federal-aid construction. If more money is needed to re-imburse the states before the year ends, Congress will vote a supplemental appropriation.

But the other proposed cuts would mean a decrease in construction previously considered for access roads, forest highways, the Inter-American highway, and the Rama Road in Nicaragua.

Here are the committee recommendations: for access roads, $7.5 million, a reduction of $12.5 million; forest highways, $15 million, a cut of $5 million; Inter-American Highway, $1 million, a slash of $7 million; Rama Road, $1 million or half of the amount requested in the original budget.

Other construction funds were slashed in the same committee bill, which spells out 1954 appropriations for three departments: Commerce, State and Justice.

In line with Administration revision of the 1954 budget for the Civil Aeronautics Administration, the committee cut out entirely the $30 million requested for federal aid to new airport jobs and reduced the amount to liquidate earlier contract obligations from $30.2 million to a revised figure of $22.7 million (see page 27). The bill also eliminates $1.66 million for the construction of a second Washington airport and $7 million for air navigation facilities.

For Falcon Dam on the Rio Grande, the committee recommends $6.5 million and expects the International Boundary and Water Commission to complete the job with this amount and to ask for no further Falcon Dam construction funds. The Truman budget had asked $9.3 million for construction work of the commission, including $7.5 million for Falcon Dam. As trimmed by the committee, the construction total is cut to $6.6 million, a reduction of $2.7 million.

Deep slashes are made, also, in smaller requests for construction of scientific facilities. The bill slices $750,000 from a $1,190,000 sum in the January budget for laboratories at the National Bureau of Standards, reducing the amount to $440,000 and a $1,490,000 request for a geomagnetic station of the Coast and Geodetic Survey is cut $740,000 to a committee figure of $750,000.

Present federal gas tax policy draws support

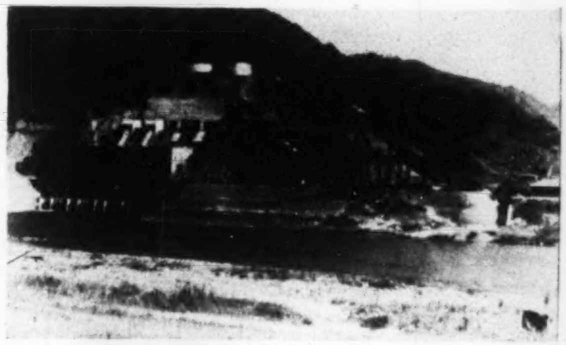
House hearings last week shed additional light on the attitude of the Subcommittee on Roads toward the federal highway program.

At no time during the first three weeks of its hearings has the committee shown any sympathy for proposals to abolish the federal tax on motor fuel or to curtail the activities of the Bureau of Public Roads. Questions and comments by committee members strengthened that impression in four days of hearings last week.

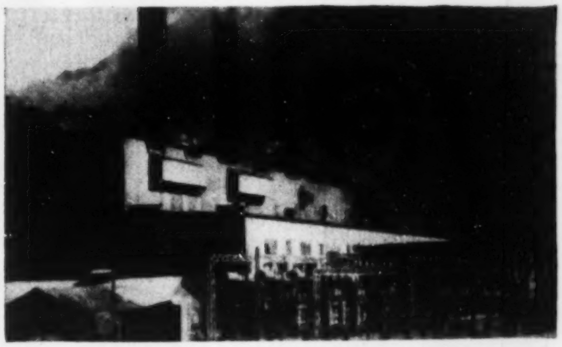
Commerce Secretary Sinclair Weeks opened the week's proceedings by confirming earlier testimony of the undersecretary for Transportation and the Commissioner of Public Roads that the Administration has no present plans for changing federal highway policies. (ENR April 23, p. 21).

Spokesmen for the Farm Bureau Federation and the Farmers Union underwent some searching examination. Criticism of federal aid practices for rural roads drew the fire of congressmen. Committee members blasted professional farm organizations for taking too narrow an approach to highway problems.

Representatives of cities and towns fared better before the committee. Six witnesses for the American Municipal Association and four for the U.S. Conference of Mayors broadly supported the present policy of federal aid for highways. They strongly opposed the proposal that the federal government give up its tax on motor fuel, and they favored increased federal aid for all classes of highways, but particularly for expressways through urban areas.



HYDROELECTRIC PROJECT at Hwachon, just north of 38th Parallel, is one of few water developments available to ROK.



THERMAL POWER PLANT at Yongwol, in east central Korea is operating at partial capacity.

$70-million reconstruction program undertaken in Korea by UN agency

U. S. consulting engineers engaged by UNKRA to advise on rehabilitation of power, transport and industry

The United Nations has launched a $70-million reconstruction program for the Republic of Korea, for which the services of an American consulting engineering firm are being employed.

An agency known as UNKRA (United Nations Korean Reconstruction Agency) will handle the program —first such undertaking to be sponsored by the UN: Financed by voluntary contributions from member and non-member nations, UNKRA is headed by J. Donald Kingsley, former Director General of the International Refugee Organization.

Knappen-Tippetts-Abbett & McCarthy, New York consulting engineers, have been engaged to advise UNKRA on the engineering problems involved in the economic rehabilitation program, originally planned for 1951 but delayed by continuation of the Korean war.

J. DONALD KINSLEY, UNKRA's chief.

• **Reconstruction requirements**—The broad program involves: reconstruction of ports and harbor facilities, hydro and thermal electric power installations; a new fertilizer plant; new flat glass and cement plants; railroads and coal mines; farm tool and textile production; irrigation and land reclamation; paper plants and small industries; schools and laboratories; and agricultural and husbandry projects.

Of great importance in making Korea a self-sustaining country is the dredging of Kunsan harbor on the west coast of South Korea. Pusan is the only port at present that can handle deep-draft vessels. The reconstruction of port facilities and warehouses at Kunsan must also be carried out to allow for the import of machinery and materials in greater quantities for an effective rehabilitation.

Fertilizer is needed in vast quantities to keep the nation's 22,000,000 population from starvation and UNKRA is currently importing more than 150,000 tons of this vital commodity. One preliminary engineering survey is concerned with construction of a fertilizer plant in South Korea to reduce as rapidly as possible the need for heavy fertilizer imports.

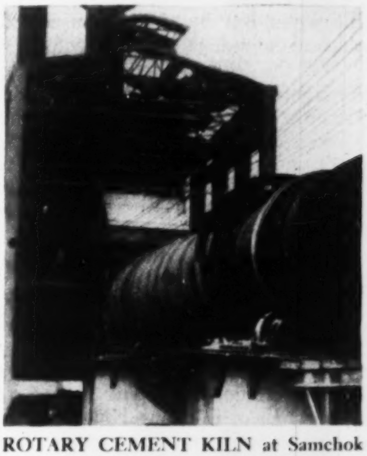
• **Power deficiency great**—Of prime consideration in the big job is the rehabilitation of thermal and hydroelectric power installations. Most of South Korea's electric power is thermal, since almost all the adequate water resources are in the north. The Yongwol thermal power plant in east central Korea, just north of the 37th Parallel, is one of the few installations now working. The U. S. Army has kept this plant going at partial capacity.

Integral with the deficiency of electric power in Korea is the shortage of coal for the thermal power stations. The procurement of equipment and material for the rehabilitation of three anthracite coal mines is urgent and of vital importance to the whole reconstruction program.

Railroads must be put back in running condition. The UN forces have kept open the lines needed to support the military effort, but they are only a part of the total mileage needed.

KTAM is investigating existing data for the proposed construction of a much needed cement factory. This is vital for expanded construction as is some rehabilitation work on the Samchok cement plant, built by the Japanese and now in partial operation.

Maj. Gen. James H. Stratton (CE, Ret.) is KTAM partner-in-charge of the project. Gen Ewart Plank (CE, Ret.) is general manager for KTAM in Korea, and E. Per Sorensen is their chief engineer there. Other KTAM personnel include two industrial engineers, a mechanical engineer, a mining engineer, a construction engineer, a ports and harbors engineer, a transportation engineer, a civil engineer, and a power engineer.



ROTARY CEMENT KILN at Samchok needs vital parts to operate at full capacity.

Prestressed-concrete pipe failure is attributed to wire corrosion

Experts agree on corroding agent responsible but differ over other aspects of trouble on Regina job

Investigators are still in the dark as to what triggered the failure of prestressed-concrete pipe that was being installed for the water supply line of Regina, Sask. (ENR Feb. 19, p. 47). They agree that the failure was due to corrosion of the prestressing wire but disagree on what started corrosion.

The prestressed-concrete pipe was being manufactured for the Buffalo Pound Lake project of Regina by the Preload Co. of Canada, Ltd., under a $2.5-million contract.

The pipe was made with a pneumatically applied core of ordinary portland cement in which longitudinal prestressing wires were embedded. Also prestressing wires, 0.142 in. in diameter, of high strength steel, were wound around the core. Then, a cover made with high-sulfate-resistant cement, known as Kalicrete, was applied pneumatically, specified because of the alkali content of the local soils, according to R. M. Doull, general manager of the Preload Co. of Canada. Calcium chloride was used in both core and cover mixes as an accelerator.

• Consultants disagree—After production was well under way, examination showed that the circumferential wire on some of the pipe had corroded. Both the city of Regina and Preload immediately hired consultants to investigate—for Regina, C. R. Young, Toronto consulting engineer; and for Preload, Prof. John P. Ogilvie, head of the Metallurgical Department, McGill University.

Young reported to the city that the Kalicrete cement in the cover coat had no evident effect on the corrosion of the wire. But he strongly suspected calcium chloride of being the culprit:

"Of the 29 examined pipes of the 84 completed before April 7 without the use of calcium chloride, none showed corrosion," he wrote.

"Examination of 58 of the pipes made with calcium chloride in the period beginning April 7 and ending with the closing down of the plant revealed corrosion in the wire of every one of them." Percentages of chloride actually used were not reported.

Disagreeing, Professor Oglivie reported to Preload:

"While the exact conditions which cause the failure at Regina are not yet known, there is strong circumstantial evidence pointing to the cause. The engineers and investigators involved all agree that the corroding agent was probably calcium chloride used in combination with the Type I cement core and the Type V portland cement cover coat. Possibly the sulfates present in the Regina water had some influence as well. It has been shown that, in the presence of calcium chloride an electrolytic potential is developed between Type I and V cements of different age. This potential in conjunction with the corrosive solution containing chlorides, sulfates, etc., caused the stress corrosion."

• Production changes agreed—Despite this difference of opinion, all agree that future production of new pipe at Regina should be carried out without calcium chloride; and that the Kalicrete cover coat should be removed from intimate contact with the prestressing wires by insertion of an intermediate cover of ordinary portland-cement mortar.

Both investigators emphasized that highly stressed steel was more susceptible to corrosion than unstressed metal. Young deduced from this that the method of applying the prestress could stand improvement. He said, in part:

"The prestressing tension on the wire was produced by drawing it through a die, which reduced the wire diameter from 0.162 in. to 0.142 in. The wire was drawn through by rotating the pipe itself, to which the wire was fastened.

"An objectionable feature of this method of prestressing," he reported to the city, "is the heating of the wire in drawing through the die. According to information supplied by Preload officials, the temperature of the wire is raised as much as 280 F. in drawing."

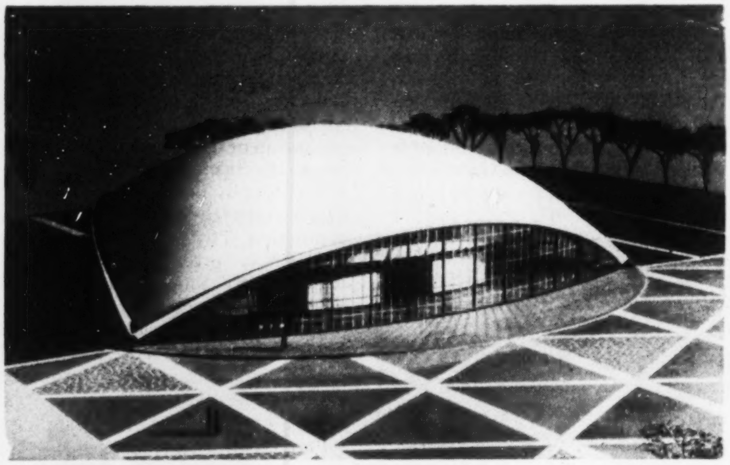
This might add as much as 50,000 psi to the wire when it cools, Young estimates. He feels that this tension added to the drawing tension leaves the wire in a state of lowered resistance to possible corroding agencies. To date, however, there has been no indication that the prestressing force will be reduced on this account in future production of pipe.

Steel lining to correct penstock tunnel fault

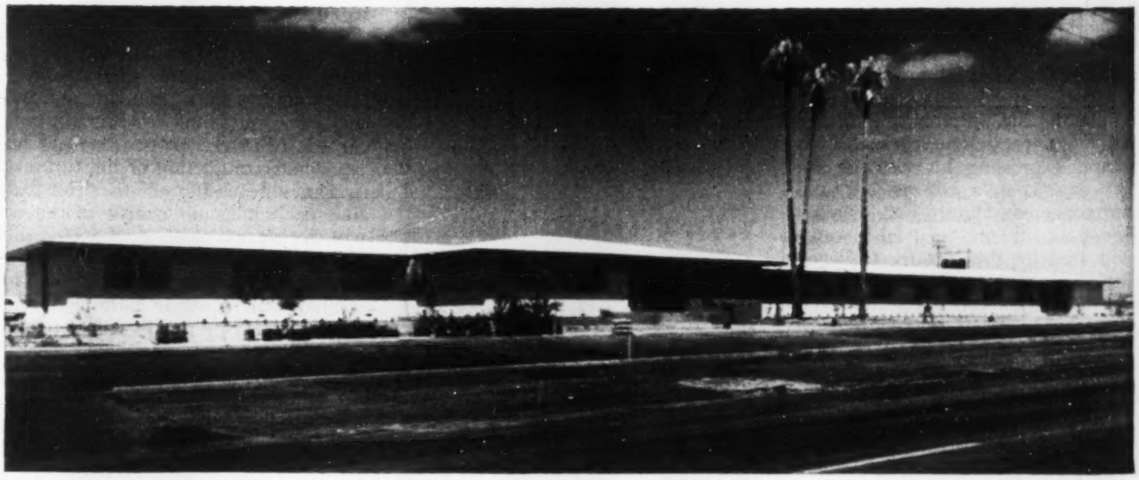
Pacific Power & Light Co. will install additional steel lining in one penstock tunnel of its Yale project on the Lewis River in southwest Washington.

The lining operation is part of corrective work being done to repair damage caused by a slight movement of part of the rock formation in unlined portion of the tunnel.

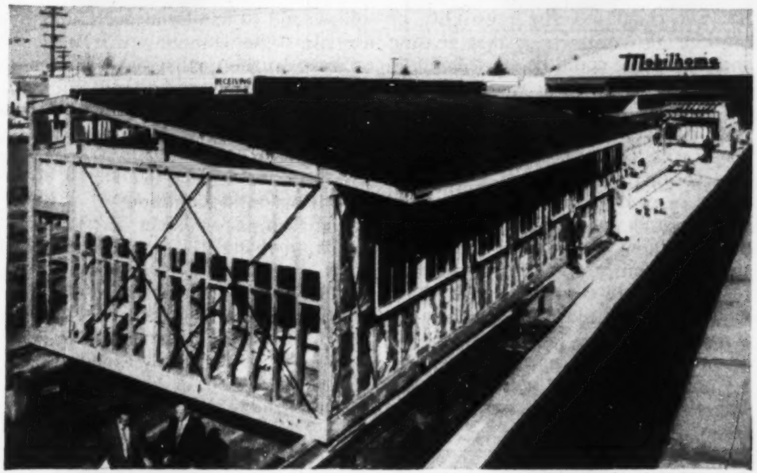
American Pipe & Construction Co., Portland, has been awarded a contract for the $300,000 job.



A building permit has been granted for construction of MIT's architecturally unique $1.5-million auditorium. The thin-shell concrete dome structure will be supported at only three points, each a ball joint. The roof will be one-eighth of a sphere spanning 160 ft. Lead covered copper plates will overlap and interlock over the concrete, yet remain movable. Exterior walls will be of glass, a specification which slightly delayed issurance of the building permit. The fire rating of this exterior represented an infraction of the Cambridge, Mass., building code but conditions were favorable to an undisputed waiver. Eero Saarinen & Associates are the architects. Ammann & Whitney are the consulting engineers.



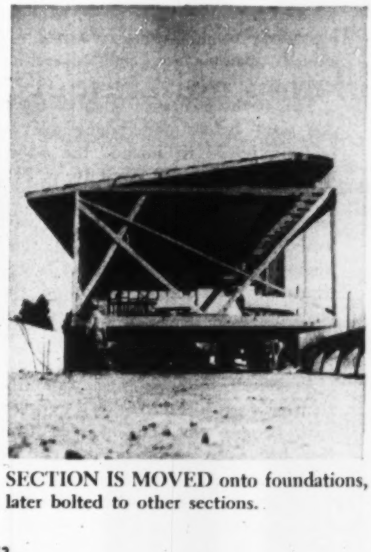
Prefabricated home factory turns out office building



Photos by Jon Brenneis

ROLLING OFF AN ASSEMBLY LINE, a typical building section is ready to be transported to Oildale, Calif., where it will become part of a 34,000-sq ft office building.

TRUCK HAULS the section from factory to site. Two were moved daily.



SECTION IS MOVED onto foundations, later bolted to other sections.

An estimated six months in construction time was saved by assembly-line production of a 34,000-sq ft office building for the exploration department of Standard Oil Company of California, at Oildale, Calif.

Thirty-eight sections comprising the structure were manufactured at the Mobilhome Corp. plant in nearby Bakersfield, which normally turns out prefabricated houses (ENR June 1, 1950, p. 42). Sections were trucked to the building site at the rate of two per day.

Final structure is E-shaped–three 175-ft long wings extending from a 291-ft long connecting structure. Typical prefabricated sections are 18½ ft wide and 66 ft long; two such elements form the full width of wing.

These sections were produced on an assembly line consisting of several working stations at which various erection or installation operations are performed. Mounted on a pair of steel channels that slide on rollers on a concrete base, each section was moved along the assembly line, stopping long enough at each section to permit the designated operation to be completed. At one section, floors were put in place; at another, pre-assembled walls and partitions; then, the roof, windows, etc. were added.

Adjoining elements were bolted together at floor, ceiling and roof joists. Stucco exterior finish was applied in place. Only other on-site work included foundations and reinforced concrete vaults.

The building, which includes offices, drafting rooms and laboratory facilities, was completed in 56 working days (over a period of 87 calendar days). Finished cost was $11.25 per sq ft, including such items as fluorescent lighting, air conditioning and plumbing.

Objection to alternate designs voiced at prestressed concrete conference

"Damn the alternates!" declared Roger Corbetta, New York City contractor, expressing his view of alternate designs in a talk at last week's conference on prestressed concrete. He spoke at one of eight sessions sponsored by the Newark College of Engineering, Newark, N. J., in cooperation with the Portland Cement Assn.

Corbetta offered several objections to alternate designs of structures: (1) Plans are seldom complete. (2) Alternates are more expensive to estimate than a single design. (3) They generally fail to accomplish the objective of introducing a new material or method at low cost.

"If prestressed concrete, in your opinion, is the material to do the job you want done," he said, "have the courage of your convictions—specify it!"

The logic of Mr. Corbetta's reasoning was borne out by the experience of the Massachusetts Department of Public Works, as related at the same session by John C. Rundlett, bridge engineer. The department requested bids on alternate designs for a bridge in structural steel and prestressed concrete. The low bid was for steel. As a result, bids after that were taken on specific designs in prestressed concrete when the department wanted to use that type of construction.

• Initial vs. long-run costs—There were five other speakers at this session, which was devoted to the subject of "Contracts for Prestressed Concrete," and was held under the chairmanship of John M. Kyle, chief engineer of the Port of New York Authority. All agreed that first cost should not be the sole criterion in choosing a construction material. As Corbetta pointed out, it may be worth while to pay a premium to get a material that eliminates maintenance.

R. M. Dubois, president of Freyssinet Company, Inc., expressed the opinion that the less details shown on the drawings for a prestressed concrete structure the better for the owner. If details are shown, he said, they should be checked by the firm whose system the owner plans to use.

Dubois also proposed that an association be formed to disseminate information on design and construction of prestressed concrete structures. That such an organization could provide a useful service was brought out by Kyle when he indicated the need of engineering departments of public agencies for personnel capable of appraising the worthiness of competitive prestressing methods.

Ohio Turnpike

Efforts made to nullify delays from court battle

The Ohio Turnpike Commission is attempting to nullify delays in construction of its 241-mi superhighway project caused by current litigation over its refusal to accept asphalt paving bids. The State Supreme Court is due to rule on the issue in June.

Though it hasn't yet acted, the commission this week stated that it has not ruled out the possibility of breaking up contracts so that grading and excavating could be started immediately. This proposal is being urged by Frank J. Converse of Cleveland, state president of the AFL operating engineers.

According to the union leader, the award of grading and excavating contracts would put to work "thousands of men" now unemployed because of the litigation over alternate bidding for paving. He contends construction would cost no more by breaking up the contracts.

• Consultants oppose move—However, last week the commission received from its consulting engineers a recommendation against "breaking the package." E. J. Donnelly of the J. E. Greiner Co. contends that separating substructures work from the final paving job would entail considerably more in construction costs and would not accelerate completion of the turnpike.

Donnelly indicated that breaking the package is no simple matter involving mere separation of paving substructure work. He warned that the grading would have to be different for asphalt and concrete pavements and that engineering details would require about six weeks to complete.

Meantime, the commission moved in other directions to cut delays. It has announced that it will take bids May 8 for fabrication and delivery of 9,000 tons of structural steel for the eastern end of the turnpike.

The commission last week also awarded a $600,000 contract to the Pittsburgh Testing Laboratory of Cleveland to handle inspection of materials. The company will maintain checks on the quality of steel, cement and aggregates going into turnpike bridges, and the first five miles of roadway now under construction on the eastern end.

• Paving outlook dubious—T. J. Kauer, chief turnpike engineer, has taken the position that there can be "no paving this year" regardless of the outcome of the suit. He says that if the decision is favorable to the commission (only asphaltic concrete bids), roadway projects previously canceled could be re-advertised in about two weeks and contracts awarded.

Mackinac bridge prospects improve

Prospects brightened this week for the Straits of Mackinac bridge project with indications that the Michigan legislature would authorize funds for annual maintenance and operation costs.

This is the assurance financial interests want before undertaking sale of revenue bonds to finance the $100-million project (ENR April 16, p. 21).

The bill, which bridge authorities are hopeful of seeing passed any day, would transfer $417,000 from state highway funds to take care of bridge expenses. This figure, based on the engineering estimates of maintenance and operations costs, may be raised or lowered by the legislators.

Financial interests first expressed their coolness to the proposed five-mile span because the state-operated ferry line had been losing at the rate of $500,000 per year for four years.

Bridge authorities contended that the bridge—linking Mackinaw City on the lower peninsula and St. Ignace on the upper peninsula—would eliminate many of the existing discouragements to travel between the two points. Both tourist and commercial traffic would be encouraged, they argued, by the easier crossing.

Investment houses then asked that the state show its good faith by allocating $500,000 per year for operation and maintenance. Legislation immediately was introduced but at the same time money to buy a new ferry was sought. Both bills lost out when the state treasurer reported it had no funds for either purpose.

At this point, investment houses indicated that the market for Mackinac bridge bonds was definitely unfavorable, and that no attempt would be made to promote sales until the Michigan legislature took action creating more favorable conditions.

Airport aid cut

Municipal plans upset by decision to withhold new federal funds

Robert B. Murray, Jr., Undersecretary of Commerce for Transportation, last week defended the Administration's decision to cut out all new money for federal airport aid from the 1954 budget.

The House Appropriations Committee went along with the Administration suggestion. It approved $22.7 million to pay the federal share on contracts authorized in prior years but voted no money for additional federal-aid airport projects.

Meanwhile, the Civil Aeronautics Administration has released 103 federal-aid airport projects from the Budget Bureau construction freeze. More than $7 million of already appropriated federal matching funds will go into the cleared jobs. About 60 projects are still under review. Early approval is expected for most of them.

Murray told the U. S. Chamber of Commerce at its annual meeting that new project aid should be suspended for one year while the Commerce Department re-evaluates the federal airport program with the help of an aviation industry committee. He cited dwindling annual appropriations and the small grants parceled out to individual cities as a deterrent to airport development.

• City officials object–Municipal officials agree that the grants have been too meager and too slow in coming, but they contend that a one-year shutdown on new aid is going to make a bad matter worse. The city officials look on the amounts requested in the January Truman budget as the minimum to keep the program alive.

Truman didn't ask for much: $30 million to assist new construction and $30.2 million to liquidate prior obligations. The $30.2 million was to complete payment on $83 million of contract authority voted by Congress in the three fiscal years 1949-51. Murray thinks $22.7 million will meet the bills coming due on these obligations next year. If more should be needed, he would go back to Congress.

• Upsets financing plans–Spokesmen for the cities have made strong protests to House and Senate committees on what they regard as "strangulation of the program." The American Municipal Assn. and the U. S. Conference of Mayors point out that cities like Columbus, Ohio, and Lansing, Mich., have floated bond issues based on federal matching funds. These cities can use the borrowed money only for airport construction in accordance with the federal program authorized by Congress.

ROBERT B. MURRAY, JR., Undersecretary of Commerce for Transportation, defends Administration views on federal airport aid at annual meeting of U. S. Chamber of Commerce.

Further, they call attention to the plight of cities that have nearly $12 million owed to them as the federal matching share of land acquisition costs. The city officials have delayed making their legitimate claim for these funds while they used such federal money as they got to speed airport construction work.

Congress in the 1946 act authorized $100 million a year of federal aid to airports for seven years. The program later was extended five years to June 30, 1958. Including contract authorizations, Congress actually voted for the seven years (1947-53) a total of slightly more than $195 million in federal airport aid. The top year was 1947, when $42.75 million was appropriated. Since then, the annual figures have trended downward, with the largest cuts coming after Korea.

Irrigation bonds

Made legal investments for savings banks by new California measure

California's Gov. Earl Warren has signed a bill making irrigation district construction bonds legal investments for savings banks (ENR April 9, p. 24).

The measure, supported by the Irrigation Districts Assn. of California, is particularly designed to aid the sale of some $52 million in bonds to finance the tri-dam project on the Stanislaus River.

However, the legislation also is looked upon as providing a wider market for future bond issues for California Irrigation District water and power projects.

The bill requires the agency issuing the bonds to be under contract to receive from a corporation, whose securities are legal investments for savings banks, annual payments averaging not less than $900,000 a year.

Pacific Gas and Electric Co., whose securities are legal investments for savings banks, has signed a contract with the Oakland and South San Joaquin Irrigation Districts, which will build the tri-dam project, for all hydroelectric energy developed by the system of dams.

In this way, the irrigation districts plan to pay off the bonds. The new law is expected to enable them to gain a lower interest rate on their bond sales.

First construction bids for the tri-dam project already have been opened. The planned reservoirs are Donnell's Dam on the Middle Fork of the Stanislaus, 64,500 acre ft; Beardsly Flat Reservoir, Middle Fork, 97,500 acre ft, and Tulloch Reservoir, Stanislaus, 68,400 acre ft.

Fluoridation gets high endorsement

The safety and effectiveness of fluoridation of public water supplies has been established beyond any reasonable doubt, the current issue of the Journal of the American Dental Assn. reports in an editorial.

One study, made by three researchers at the University of Rochester, was concerned with fluorides and bone structure and showed that drinking water containing one ppm fluorine could not have a harmful effect on bone tissue, even if all the fluorides in the water consumed throughout the lifetime were stored in the bones.

In the second study, a Yale School of Medicine scientist studied the relation of cancer to fluorides and reported that tumors transplanted into mice developed more slowly if the mice received fluorides.

The association's Council on Dental Research emphasized three points:

- "Millions of people have consumed drinking water incidentally containing one ppm or more of fluorine for generations without known deleterious effect."
- Investigations leading to development of the program are scientifically sound.
- "Continuous study by qualified investigators has emphasized the safety," of the procedure.

Bill exempts construction from Taft-Hartley law

Introduced in committee by Senator Smith, the bill has Taft's backing and is second choice of unions

A serious move to take the construction industry out from under the Taft-Hartley labor law—and leave it subject to state regulation—was initiated in the Senate last week. Sen. H. Alexander Smith of New Jersey, Chairman of the Senate Labor Committee, introduced a bill (S. 1785) which would exempt any employer "primarily engaged in the building and construction industry," local public utilities, employers of less than 10 and others whose business activity has only a minor impact on interstate commerce.

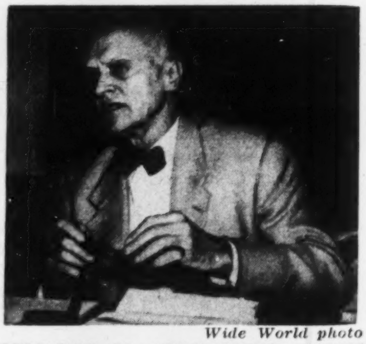
The bill, part of a general objective of the Republican Administration to reverse the trend toward increasing federal intervention and assign more responsibility to state governments, has strong support from other senators and the Eisenhower Administration.

Sen. Robert A. Taft, Republican policy leader and key man on Taft-Hartley, is sympathetic, although he would like to keep the construction industry protected against secondary boycotts and jurisdictional disputes.

• Second choice—The AFL Building Trades Dept. will accept the Smith bill as a last resort if Congress won't restore the closed shop, won't make certification elections possible in construction or won't override state anti-closed shop laws.

The department president, Richard J. Gray, told ENGINEERING NEWS-RECORD he still prefers the Taft-Humphrey bill which passed the Senate last year. It would permit job agreements with contractors before work begins, permit a union shop contract requiring employees to join the union within seven, instead of 30, days and override, in construction, state "right to work" laws forbidding compulsory union membership. Taft put this bill in again this year with one difference objectionable to the AFL: It does not override the state laws against compulsory union membership.

The idea of exempting construction from Taft-Hartley was tossed out by Gray himself on Feb. 25 when he addressed a luncheon meeting of the U. S. Chamber of Commerce's Construction Industry Advisory Council in Washington. He asked the industry to join in such a step.



Wide World photo

SENATOR H. ALEXANDER SMITH would exempt construction from T-H.

Sen. Taft on several occasions has indicated that Taft-Hartley was not suited to the construction industry, although he was reported earlier to feel that the 1947 statute should be revised to make it fit. On April 21, when Gray testified before the Senate committee, the Ohio senator said the idea of excluding construction from Taft-Hartley should be "explored." And Gray commented that his organization "would welcome it." When the Smith bill was introduced on April 28, Taft said he was "sympathetic" to that approach, but is concerned about the problem of secondary boycotts and jurisdictional disputes.

There is some concern that the National Joint Board for Settling Jurisdictional Disputes in Construction, set up purposely to avoid the Taft-Hartley restrictions, would disintegrate without the threat of Taft-Hartley sanctions. The industry and AFL unions are now in the process of extending the joint board plan for another year.

• NLRB—The National Labor Relations Board, which never applied the Wagner Act (predecessor to Taft-Hartley) to the construction industry, would like to get rid of the troublesome problem it has had trying to hold elections and deciding tricky secondary boycott situations in construction.

Considerable opposition to the Smith maneuver is evident and probably is strong enough to block it. The CIO and John L. Lewis' United Mine Workers are against such a step as favoring one part of the labor movement. The construction industry had not commented officially at press time, but unofficial sources indicated industry opposition to the Smith bill, mainly because it would lift the restraint on secondary boycotts and jurisdictional strikes. Nor is there much sentiment among House Labor Committee members for such a move.

Hartford strikes end as bricklayers return

A series of labor disputes that had tied up $30 million worth of construction in Hartford, Conn., for a month, were settled last week.

Following a formal vote of the bricklayers, masons and plasterers union to end its strike and accept a 10-cent-an-hour pay raise, members of this union and two laborers' unions returned to work. The laborers had struck first with 1,500 men involved.

A last minute agreement averted a strike by the roofers. This union obtained wage increases ranging between 12½ cents and 15 cents an hour, after six weeks of negotiations.

Jurisdictional disputes cause union board break-up

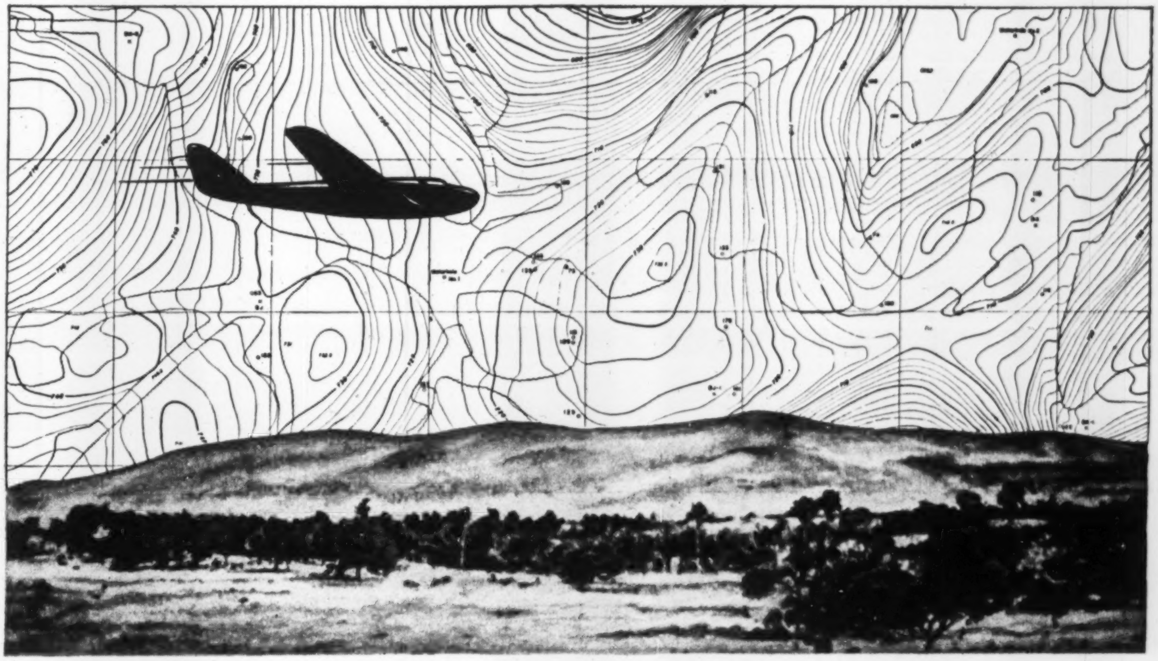
A work stoppage last week stopped construction at the $100-million General Electric Appliance Park in Louisville, Ky., and emphasized a major rift between AFL carpenters and other building trades.

The two-day stoppage grew out of a jurisdictional dispute between the carpenters and the plumbers and pipefitters. About 360 members of the plumbers and pipefitters walked out to protest a job assignment given millwrights.

The dispute involved the installation of copper lines used to carry lubrication for bearings on machinery.

But the inter-union feud continues: The carpenters group—representing about 3,500 men—has virtually withdrawn from the Louisville Building Trades Council.

As far as the millwrights and carpenters are concerned, the withdrawal scuttles the machinery set up two months ago by the Building Trades Council for curbing jurisdictional strikes. The procedure calls for submission of such strikes to an impartial three-man committee of the council.



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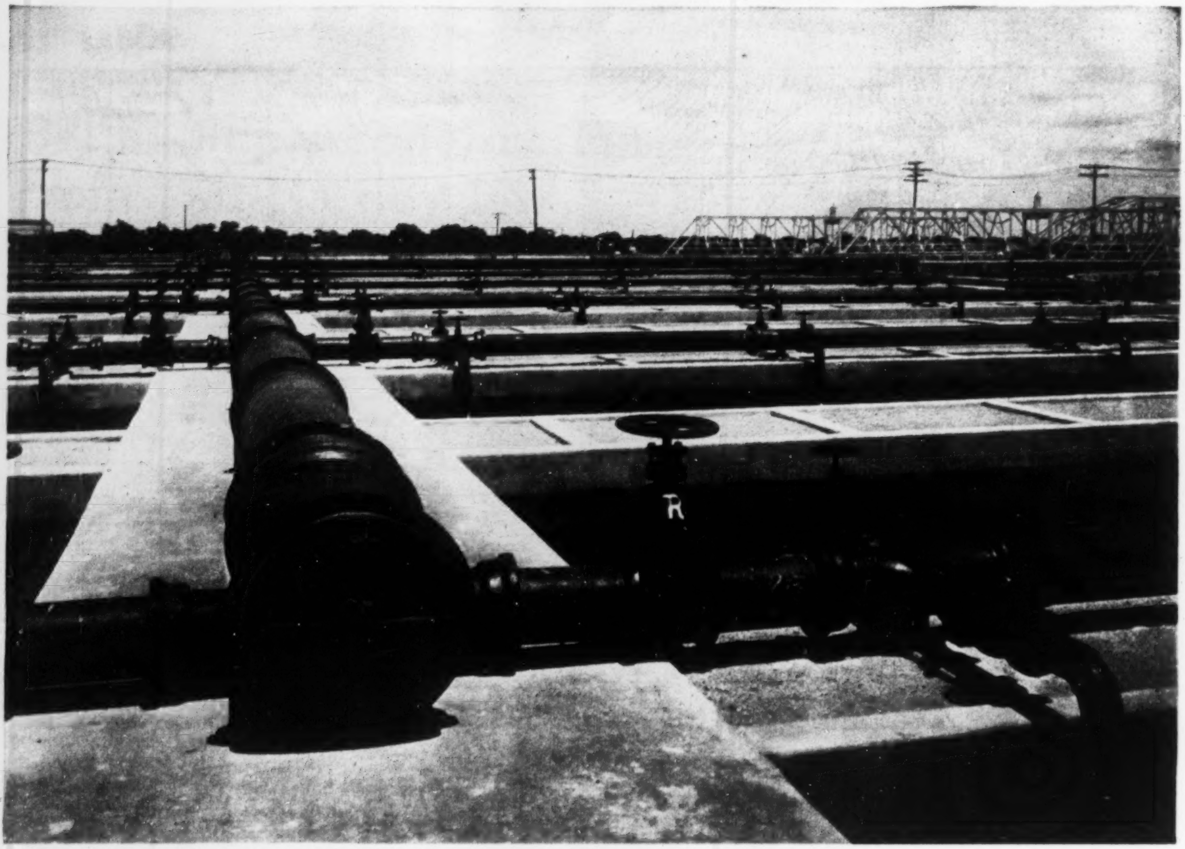

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Philadelphia strike led by carpenters

Contractors' counter proposals rejected by ballot of most of carpenters voting in the area

Contract proposals made by the General Building Contractors Association of Philadelphia were rejected last week by an overwhelming majority of the nearly 5,800 AFL carpenters voting in the Philadelphia metropolitan area.

The result of the vote brought about a complete shutdown of construction projects in the area. Carpenters, ironworkers and other trades either did not report for work or walked off the jobs last Friday.

Union officials had warned that the vote would mean a work stoppage unless the builders moved to better their offer. The contract expired April 30.

The union has a total membership of 10,000 in the area. The union made 17 demands including:

An increase of 35 cents an hour over the present rate of $2.90; 20% pay raise for foremen; 25% pay boost for extra shift work; two hours reporting time; compensation of $150 for the loss of tools and $75 for loss of clothing. Also included was: Double time for working during lunch periods; a $75 tool allowance for apprentices; two paid holidays; and better sanitary conditions.

Robert H. Gray, carpenters' council secretary-treasurer, said the contractors agreed to accept only the demand for better sanitary conditions and suggested the $75 tool allowance be submitted to the apprenticeship committee for a decision.

The voting was important to all construction trades in Philadelphia. By tradition the contract with the carpenters is discussed and negotiated first. The carpenters' contract is then used as the basis for making other trades' agreements.

Other strikes

Work stopped last week on the Atomic Energy Commission's $4.5-million Aircraft Propulsion Project and on other jobs in Southern Idaho as the result of strike action by ironworkers and carpenters.

Contract talks broke down over the ironworkers' demand for a 25-cent per-hour wage boost, travel pay and employer participation in a health and welfare program. Utah Construction Co. is prime contractor on the AEC project.

Carpenters seeking a wage boost of 15 cents per hour to the $2.50 wage level struck jobs at Idaho Falls, Pocatello, Twin Falls, Filer and Buhl. The unions were negotiating with the Associated Builders of Southern Idaho.

• **Bricklayers out**—Work stopped on the $50-million Armco Steel Corp. strip mill at Ashland, Ky., and a $26-million expansion at the Semet-Solvay Division of the Allied Chemical & Dye Corp. at South Point, Ohio. The stoppage was called by AFL bricklayers employed by the McGraw Construction Co. of Middletown, Ohio. The cause of the strike is a jurisdictional dispute over the laying of wooden block flooring.

The Ashland Building and Construction Trades Council has called the walkout illegal.

• **Strike notes**—A strike of 1,000 AFL painters at Pittsburgh continued last week, halting about 22 projects. The strikers voted to reject a 12-cent hourly pay boost offered to them by the contracting painters . . . About 540 painters stopped work in Indianapolis, pending settlement of differences with contractors . . . In Marion, Ind., 300 painters, plumbers and carpenters struck to enforce demands for pay increases . . . About 1,200 Syracuse, N. Y., carpenters, seeking a 25-cent wage increase, struck construction in the city and Onondaga County.

St. Louis probe under way

A federal grand jury investigating labor racketeering in the St. Louis area (ENR April 16, p. 32) already has heard 46 witnesses, most of them from the construction industry. The inquiry is expected to continue for several weeks.

Police and FBI agents are keeping close watch on the grand jury room, and other unusual measures have been taken to protect the inquiry. Names of witnesses are being kept secret.

The exhaustive inquiry was ordered by U. S. District Judge George H. Moore into "reported terroristic activities by professional gangsters and unscrupulous officers and agents of labor organizations to extort money and property payments from employers, particularly contractors in the construction industry."

Strikes settled

Most of Cheyenne, Wyo., plumbers and steamfitters went back to work last week after a 23-day strike. Most plumbing contractors agreed to union demands for a 13½-cent wage hike.

The dispute had tied up an estimated $1 million in construction projects.

• **Other settlements**—Work was resumed on the $110-million expansion program at the AEC Hanford Works near Richland, Wash., with settlement of a wage dispute between AFL office workers and Kaiser Engineers. The five-day strike idled 4,700 construction workers . . . The General Electric plant at Buechel, Ky., was under way again after a short jurisdictional strike by plumbers and pipefitters.

Operating engineers strike for classification change

Excavating and grading work at the new $15-million hospital, which Allegheny County is building near Pittsburgh, Pa., has been halted by demands of the AFL operating engineers for a job classification which would give them certain hiring rights.

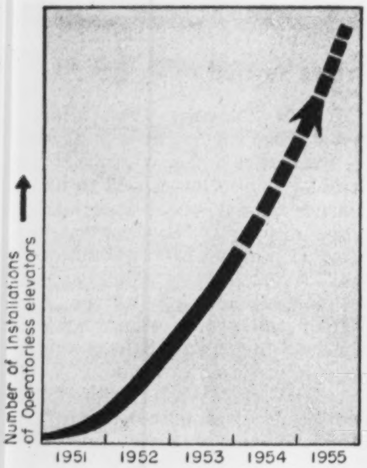
Union leaders ordered a 20-day shutdown. The dispute involves the question of whether or not operating engineers should be paid under contract provisions in building construction or heavy construction.

Ben Construction Co., the contractor, contends that the work comes under the heavy construction wage contract. That contract was agreed upon after a three-day strike against the Constructors Association of Western Pennsylvania.

Union leaders of the engineers demand that the company employ its members under the wage contract held by the AFL Pittsburgh Building and Construction Trades Council.

Although the building trades contract calls for only five cents an hour more in wages, working conditions are different under the two contracts. The heavy construction contract permits an employer to hire men of his own choice. The building trades pact calls for something similar to a "hiring hall" since the union assigns men to the job.

A spokesman for Ben Construction called attention to the fact that the building trades agreement also guarantees a work week. The heavy construction pact has no provision for pay when operations are halted by weather conditions.



UPWARD SLOPE of curve indicates the sharp trend toward use of operatorless-elevator systems in heavy-traffic buildings.

New trend . . .

Elevators controlled by electrical brains

ANNOUNCEMENT last month by Westinghouse Electric Corp. of the availability of a completely automatic elevator system emphasizes a noteworthy trend in vertical transportation in buildings. It indicates also the recognition that is being given by elevator manufacturers to the growing demand for operatorless elevators for tall, heavy-traffic buildings.

These recently developed elevator systems should not be confused with the pushbutton type that has been in use in apartment houses for many years. The new systems coordinate the movement of each car in a bank of elevators with the operation of the other cars, to serve all floors adequately and efficiently as traffic conditions vary.

Two operatorless elevator systems are now in use—one developed by Westinghouse and one by Otis Elevator Co. Both have for their objective the matching of elevator service in a building to the demand. These systems have been installed in office buildings up to 30 stories high.

• **Sales climb**—Few such installations were made before 1951. In 1952, however, sales took a spectacular jump. And now it is reported that installations in 1953 will be even more numerous. Furthermore, in the light of the number of contracts already signed, 1954 will be still better.

• **The reasons**—Three factors contribute to the trend toward operatorless elevators: (1) Building managers find them economical. (2) The public accepts the idea. (3) Automatic operation has reached a high state of technical development.

Some idea of the importance of attendantless elevators to building management may be gathered from a talk made by W. G. White, manager of Westinghouse Elevator Division's contracting operations to a group of building owners and managers:

"We of the elevator industry have been told repeatedly by building management that labor takes the biggest bite of your operating dollar. What we are trying to do is to reduce the size of that bite . . .

"Including wages, relief and replacement, welfare, old-age benefits, workmen's compensation insurance, hospitalization and uniforms, the average annual cost of elevator-operating personnel varies between $5,500 and $7,000 for each car. In hotels and larger apartment buildings, where manually operated elevators work nights and week ends, this annual expense item may go as high as $12,000 per car.

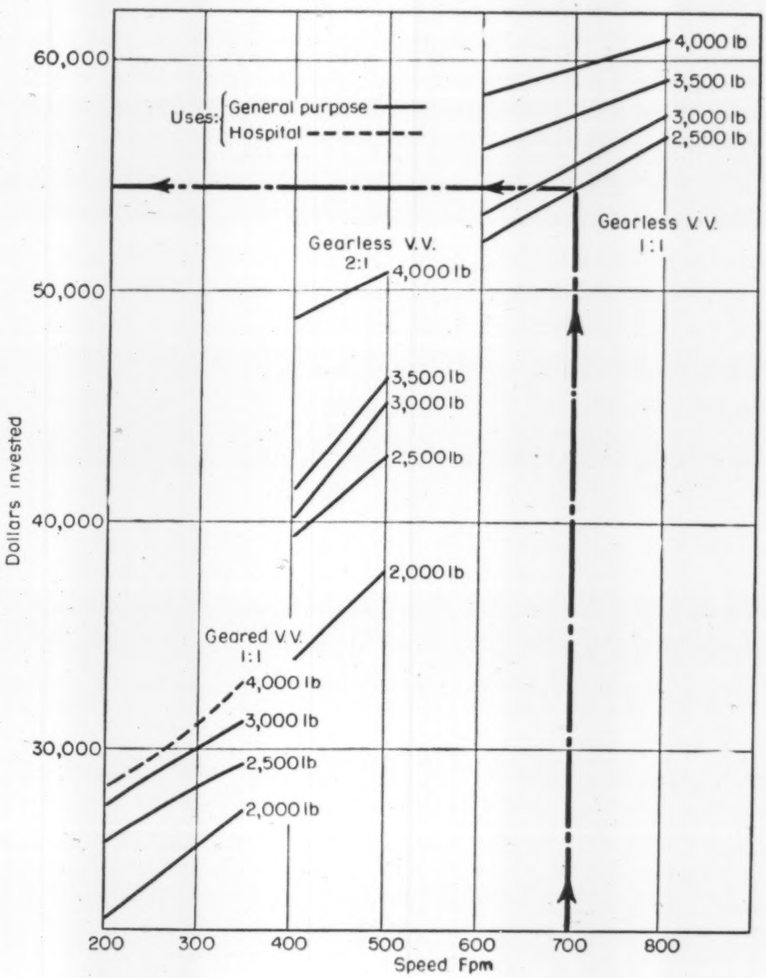
"Your cost accountants tell us that, on the average, wages paid to elevator departments of your buildings—when cleaning is paid for by management and not directly by the tenants—will account for 20% of the total building payroll. In buildings where the cleaning item is assumed by the tenants, this percentage will be correspondingly higher."

• **Operation costs cut**—Mr. White's labor costs indicate the potential savings in wages with operatorless elevator systems. But other savings also are possible.

Since operatorless elevators may give faster service than the old manual type, the number of elevators in a building may be reduced. Four new-type elevators can do the work of five old-style cars. Otis estimates the value of the space saved may run as high as $6,000 per year per car.

An operatorless system, furthermore, has the advantage that it will function when other types requiring attendants for operation are shut down due to a manpower shortage or a labor strike.

Of course, the initial cost of an operatorless system is greater than that of a manual system. Installation of a manually operated elevator of the gearless (passenger) type costs on the average about $60,000. To make it



automatic adds about $4,500 to the cost. And to install Westinghouse's new Automatic Traffic Pattern system (ENR April 9, p. 118) which eliminates the starter as well as attendants, costs an additional $3,000 to $6,000 per bank of elevators.

A big factor in the growing acceptance of automatic systems is that tenant reaction has proved to be favorable. According to studies made by the elevator companies, tenants are not only willing to press buttons themselves to select their own floors but also to press them during crowded periods for those who cannot get to the buttons.

• Service improved—Key to the successful operation of these automatic elevator systems is the development of electrical brains capable of coordinating the operation of a bank of elevators. As a result of the more efficient solution of traffic problems made possible by these superhuman minds, operatorless elevators minimize passenger waiting time and provide substantially equal service to all floors. They increase passenger capacity up to 30% during down-peak periods and as much as 20% during up-peak periods. Also, the elevator companies claim, they provide the most flexible system available for off-peak periods.

When a starter is used, he is given complete freedom for the important job of directing main-lobby traffic and improving tenant relations.

• Development was gradual—These automatic systems are the culmination of 100 years of experience and development, of which the greatest advances occurred in the last 20 years. Progress at first was marked by improvements in operation of cars, tending to eliminate the inherent inefficiency of attendants. This stage reached a climax with the development of self-service or push-button elevators for certain applications, such as apartment houses and hospitals.

These elevators, however, suffered from the serious limitation of not being able to store calls. The first person to push a corridor or car button

(*Continued on page* 34)

How to estimate elevator costs

Cost of passsenger elevators may be estimated conveniently with the aid of the accompanying cost chart which was prepared by Westinghouse Electric Corp. The curves give costs, including cab and entrances, for an installation in a six-floor general purpose building or hospital, with 12-ft story heights. For additional floors, costs increase in proportion to the number.

For gearless elevators with speeds up to 500 fpm, add $1,400 per floor in excess of six; above 500 fpm, add $1,600 per local floor and $560 per express floor.

For geared elevators of 2,000-lb capacity, add $1,150 per floor in excess of six; for 2,500-lb elevators and larger, add $1,300 per floor.

To these prices, $4,500 per car should be added for automatic operation. This figure is approximate; the cost actually varies with the number of floors served.

For Automatic Traffic Pattern, which eliminates the need for a starter, the cost is about $3,000 to $6,000 per bank of elevators. This estimate, too, depends on the number of floors served and also on the number of elevators in the bank.

Suppose, for example, a 21-story office building is to be equipped with both local and express elevators. Assume that four 2,500-lb, 700 fpm, variable-voltage, gearless, automatic elevators will serve the first twelve floors, and the same number, floors thirteen to twenty-one.

The chart indicates that the basic cost for one of these elevators for the first six floors is $54,500. For local elevators, $1,600 × 6, or $9,600, must be added for additional local floors, making the total for one elevator $64,100. Hence, the four local elevators will cost $256,000.

For each express elevator, the additional cost for bypassed floors is $560 × 13, or $7,280, and for the floors at which it stops, $1,600(21 − 12 − 6), or $4,800. Thus, the total cost of one express elevator is $66,600, and of four, $266,400.

If the elevators are made automatic, the cost will be increased about $4,500 × 8, or $36,000, making the total cost of the eight elevators $558,800. To this, perhaps $6,000 might be added for installation of Automatic Traffic Pattern.

obtained completed control of the car.

Another stage in the development of the fully automatic elevator system began with the installation of collective controls. With this system, calls could be stored and answered in the direction of the car's travel. Finally, the system was extended to groups of up to four cars, but only for buildings with light traffic, where elevators are called into service only on demand.

A third stage in development began with the introduction of supervisory systems. Manual dispatching of elevators by a starter was replaced by automatic dispatching. In this method, a timer signals the cars at predetermined intervals to leave the terminals, as they become available. Reducing round-trip time for the cars, this device, in effect, increases their carrying capacity.

Next signal controls were developed to have the cars pick up calls in sequence as they approach them in the proper direction of travel. This system, however, could not adjust to varying traffic conditions. During the down-peak period, for example, cars would fill up at the upper floors and not stop again; so the lower floors received poor service. To overcome such defects, several new types of controls were developed in succession, culminating in the electric brains now produced by Westinghouse and Otis, which adjust instantly to meet demands for service.

• How new systems work—In the fully automatic systems, when office employees report for work in the morning and traffic is predominantly up, the supervisory control sets itself for the up peak. Cars leave either at the end of a fixed interval or when loaded to 80% of capacity, as indicated by a load-weighing device in the floor of the car. As soon as the highest call is answered, each car returns to the lower terminal.

For very heavy up traffic, the building is divided into a high and low zone, and elevators are automatically assigned to each zone. This decreases the average round-trip time, which improves the carrying capacity of the elevators.

At the close of business in the evening, the system adjusts to a down peak. The building again is divided into two zones. Waiting time at the bottom terminal is eliminated. Cars start down as soon as they reach the highest call, and when fully loaded, automatically bypass remaining corridor calls. High-zone cars meanwhile answer all up calls.

For very heavy down traffic, each zone is divided in two. The system can be set up so that nobody should have to wait more than one minute for an elevator during operation at the peak period.

In between peak periods, when traffic up and down is nearly balanced, cars operate at uniform intervals. If traffic becomes heavier in either direction—during coffee hours or lunch, for example—cars leave both terminals at more rapid intervals, as they become available. If a car arrives at its lower terminal after the time scheduled for departure, it is dispatched up immediately. If there is no car at the upper terminal when the start-down signal is given, the highest car starts down as soon as it has made its highest call.

During off hours—nights, Sundays, holidays—cars park at the bottom terminal with motor-generators shut off. When a call is registered, the motor-generator set of one car starts up automatically.

• Safety devices—Since no attendant is available to supervise the taking on and discharging of passengers, several safety devices are incorporated in operatorless elevators in addition to those commonly carried by manually operated cars: (1) An automatic load weigher prevents overcrowding. (2) Buttons are provided in both the car and starter stations to stop the closing of the doors and to hold them open, when required. (3) Lights may be installed in the cars to indicate what floor stops have been pressed. (4) A two-way loudspeaker system can be installed for communication with the starter station. (5) If primary power and supervisory systems should fail, the cars would be shifted to auxiliary systems immediately.

Door safety systems may be activated by pressure against door edges, a photoelectric cell or electronically. In the electronic system, the door reverses when it gets within 3 or 4 in. of a passenger. If a passenger continues to stand in the doorway, the door will open and then start to close again. After several cycles, the reversal circuit is temporarily taken out of the circuit, permitting the door to close at slow speed, nudging the passenger into the car. A warning buzzer sounds at the same time.

Illuminated signs in the cars as well as in the terminals indicate to passengers which car is next to leave. In large-size cars with center opening doors, two car pushbutton stations may be used, one on each side of the opening, to facilitate operation when the cars are crowded.

• Bright future predicted—Safe and efficient operation of these automatic elevators over the last few years has encouraged their use in many types of buildings. Otis reports that 30% of its sales of automatic systems were for office buildings occupied wholly or partly by tenants; 32% were for owner-occupied buildings; 23% for hospitals, and the remainder for hotels, public buildings and clubs.

"What we know about it to date," says Emmett W. Hines, vice president of Otis, "makes us confident that the operatorless elevator will, within a relatively short time, become an integral part of a large percentage of our major buildings."

Masonry cracking

Magnesium oxide in mortar may be cause says NBS

Cracking of masonry walls may be caused by gradual hydration and expansion of mortars containing free magnesium oxide, according to J. W. McBurney of the National Bureau of Standards. This oxide is present in large amounts in normal hydrated dolomitic limes and in masonry cements.

Chicago common brick used in the tests was exposed to weather for two years before use, so that hydration of any lime in the bricks presumably was complete. NBS scientists measured expansions ranging from 0.32% to 0.56% in less than two years. This was roughly five to ten times the expansion that was produced in a control wall in which the cement-lime mortar was made with high-calcium hydrated lime (free from unhydrated magnesium oxide).

Recent studies by NBS of a number of masonry failures, reported in Iowa and Wisconsin by the Structural Clay Products Institute, show that the one factor common to all the buildings was the use of a masonry cement containing excessive amounts of unhydrated magnesia.

NBS offers several recommendations for preventing and remedying masonry failures that are caused by delayed expansion:

- Mortars should be made only from those masonry cements and cement-lime mixtures whose linear expansions do not exceed 1.0% in the American Society for Testing Materials test C151-49,
- In cases where tests have not been made only Type S hydrated lime or putty made from high-calcium quicklime soaked for at least 24 hours should be used.
- When failures have developed from the use of insufficiently hydrated materials, cutting out and repointing of mortar joints should be delayed until the hydration of free oxide has approached completion.

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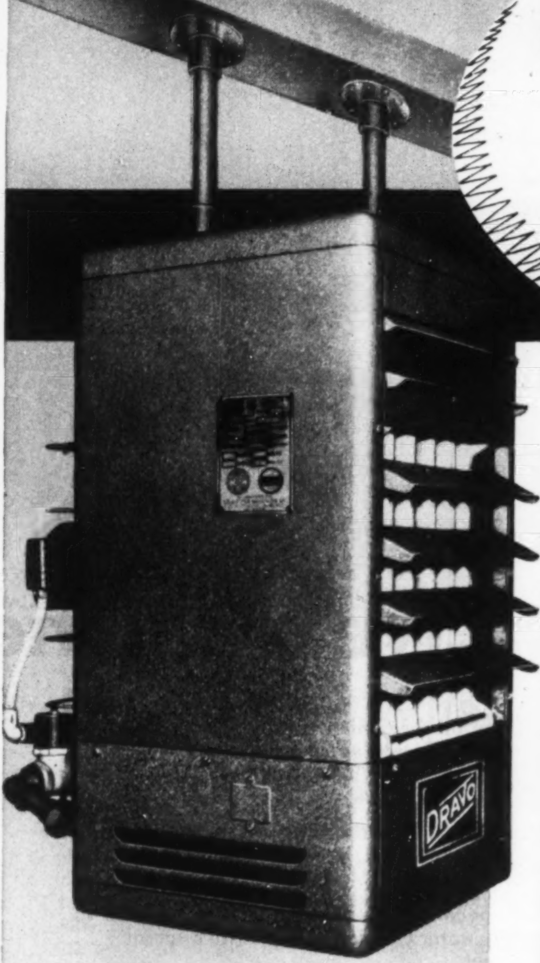

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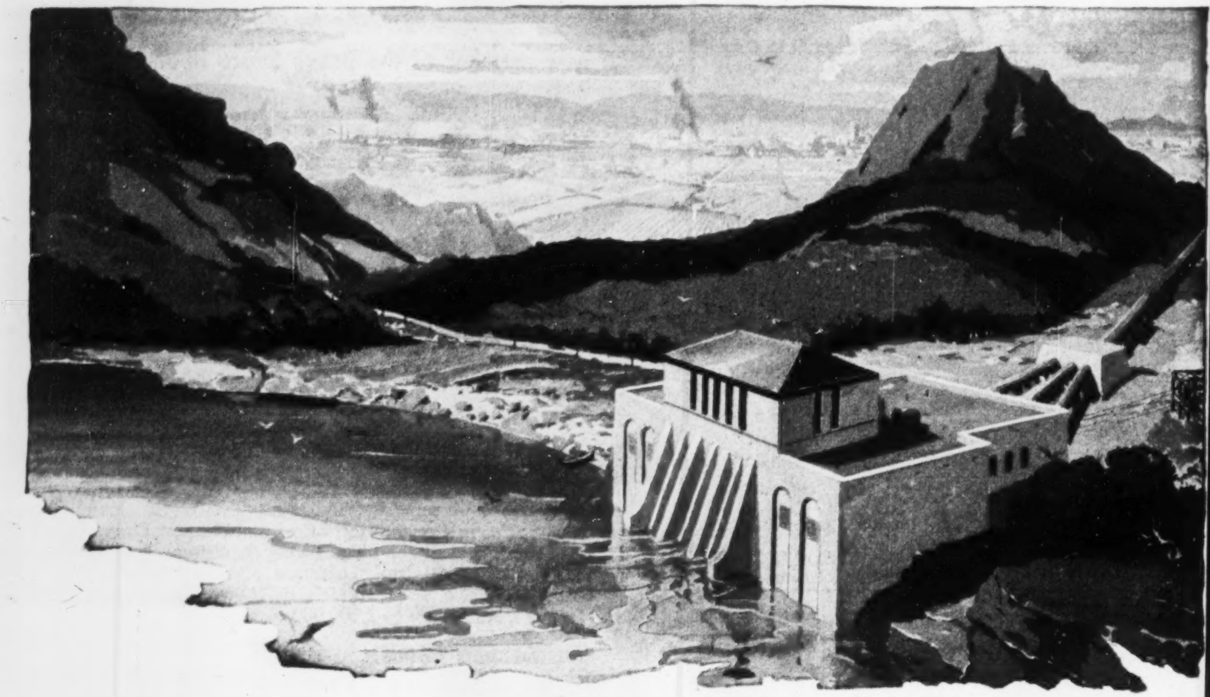

WHEN Millions Live As One

ADVENTURESOME folk, since the beginning of time, have migrated . . . Settling in tiny clusters . . . Spreading spider-web fashion to dot the land with villages and towns . . . While others pressed forward, facing dangers concealed behind each rock and tree!

But with the growth of cities, new perils arose and multiplied . . . People were living too closely together . . . Epidemics and pestilence exacted their toll . . .

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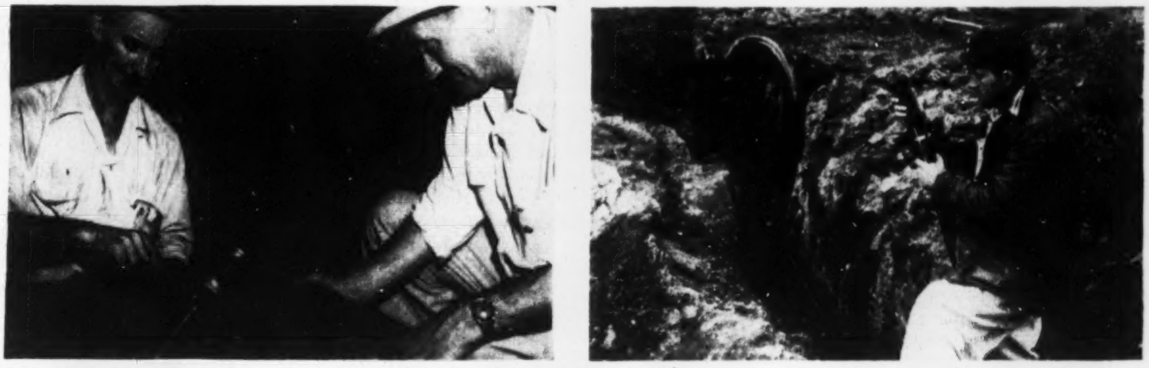

Scattered applications in water distribution have now accumulated some experience . . .

Plastic pipe: What's its future?

AN INFANT INDUSTRY that sold only half-a-million-dollars worth of its new product in 1948 had developed into a strapping $15-million-a-year youngster in the pipe business last year, with hopes of increasing its sales at least another one-third in 1953. Much of this anticipated growth will depend on how fast plastic pipe gains acceptance in the waterworks industry.

Reports from waterworks people across the country indicate some enthusiasm for the new pipe. But the total reaction of those using it in test service-line installations (and in one complete, though small, distribution system) indicate more hope than satisfaction.

Two current efforts of the plastics industry (other than selling) will have a great deal to do with how fast plastic pipe wins acceptance for water distribution.

Effort No. 1 is the research under way at the National Sanitation Foundation at the University of Michigan. Sponsors, 23 manufacturer members of the Society of the Plastics Industry, hope to clear their pipe of all toxicity and taste and odor doubts in the minds of state health authorities. And they hope to have the final statement of findings by Laboratory Director Walter D. Tiedeman late this year.

Effort No. 2 has been a move in the direction of standards of manufacture. A Thermoplastics Pipe Standards Association had developed last year among manufacturers, and recently it became the thermoplastics pipe division of the Society of the Plastics Industry.

SPI, a trade and technical society, represents more than 750 companies in all branches of the plastics industry and considers vitally important among its interests the problem of standards. Standards of manufacture are recognized by spokesmen for the manufacturers as a prime problem of plastic pipe as it faces the waterworks industry, strong on standardization.

Speaking last fall at the joint committee of public health officials and industry representatives overseeing the research project at Ann Arbor, Raymond J. Faust, executive assistant secretary of the American Water Works Association, recommended to pipe extruders that they standardize threads, fittings couplings, diameters and materials.

Apparently this recommendation has been deemed a worthy objective of the plastic pipe industry. Even recognizing the advantages of standardization, the extruders already firmly in the game naturally have a competitive position to strive for or retain; they have secrets of manufacture to be guarded; and they have in mind the advantages of being able to produce a tailor-made product for superior performance in a specific installation—a strong selling point.

Up to now, in the jockeying for position, many extruders have been too busy claiming to have a plastic different from and better than the other fellow's to want to stick to standards. But the fact that nearly all of the extruders are now co-operating in SPI's thermoplastics pipe division would augur well for an improved situation on standards in the future.

• **Applications to date**—The two major efforts of plastic pipe makers to gain acceptance in the waterworks industry (the toxicity research and the move toward standards) are not holding up its sales forces at all. Plastic pipe has been advertised as non-toxic and sold as water main and service line. Although a great portion of an estimated 11 million pounds of pipe manufactured in three major types last year went to farms, mines, and oil fields, there were applications for use on public water supplies.

Test installations were in use last year in Los Angeles, Detroit and Pontiac, Mich.; Loretto, Tenn.; and Senatobia, Miss. The American Water Works Service Co. whose parent concern holds 111 water companies in 22 states had made 850 service connections with ¾- and 1-in. plastic pipe when copper tubing was in critical supply. And then there was the much-publicized installation of 20,000 ft. of 1, 1½, and 2-in. plastic pipe for Pax, W. Va. (see below).

• **Experiences to date**—Los Angeles Department of Water and Power a year and a half ago, put in four plastic service connections from small distribution mains to homes. Diameters used were 1-in. and 1¼ in. Department engineers have found "some disadvantages" but believe a satisfactory plastic pipe will be developed. They say that they do not know enough yet from their small experience to evaluate it now, but they do mention the pipe's lack of resistance to heat as a problem.

The Water and Power Department and Pacific Gas & Electric have both made studies of plastic pipe in power installations. They report the material about half as costly as copper, and cheaper to install.

American Water Works Service Co. made its extensive service-line installations with flexible polyethylene (which accounts for some 75% of all plastic pipe produced). It is used where pressures are under 100 psi and in wall thicknesses of 0.173 in. and 0.181 in., respectively, for ¾ and 1-in. diameters.

Pontiac, Mich., is using plastic pipe experimentally in its water system. First sections were laid in August, 1950, and other sections have been installed periodically since then. In all, about 1,000 ft in services are in use throughout the city. Most of this pipe is ¾-in. except for 1½-in. installation servicing a city park. Installations are mostly in residential areas. Pressure varies from 35 to 60 psi.

Sections of the first installation were dug up recently for inspection, and after two years' use they showed no signs of corrosion either inside or out. There was some damage at coupling points, however. Plastic couplings and fittings cracked and showed signs of wear. However, Pontiac now has installed bronze fittings that are expected to solve this problem.

To date, Pontiac water department people are enthusiastic about the plastic pipe experiments. They find plastics somewhat less expensive, even with the high-priced bronze fittings, and if plastics hold up as well over longer periods of time, officials think they will be an improvement over copper pipes now in use. Pontiac water is hard, has a high iron content which causes copper pipe to tuberculate after 10 to 12 years. Current experiments with plastics will continue at least that long.

• **No peace in Pax**—A troublesome situation for plastic pipe has developed in Pax, W. Va., where a small distribution system serves about 260 homes. Plastic was chosen because of corrosive sulphur-bearing shale in the ground and rugged, rocky digging that made a flexible, zig-zag line advantageous. The system has been in (and out of) the ground for about a year.

Pipe was sold to two different contractors for Pax, through a jobber. Calculated working pressure at 80 deg F was given (but not guaranteed) by the manufacturer as 138 psi. According to the manufacturer, the town's consulting engineer estimated that at no time would pressures in the system exceed 105 psi, and that was the basis of the sale. Excessive pressures during surges in the lines have been measured, says the manufacturer, at 240 psi. And the system has leaked badly.

The whole system is now under redesign that will mean placement of pressure regulation devices—and possibly replacement of most of the pipe, depending upon how badly it has been overstressed. The manufacturer (who shipped many millions of feet of plastic pipe last year without other such trouble) is cooperating with the consulting engineer in redesign.

• **Other uses**—Plastic pipe is used not only for water, but for wastes, gas, oil, chemicals and other fluids. Its biggest inroad so far perhaps has been in the oil country where it carries salt water and competes with steel pipe.

First cost of 12½ cents per foot for ½-in. dia to $2.75 per foot for 6-in. puts plastic near twice the cost of ordinary steel. But light weight, longer lengths, flexibility, fewer fittings, easier installation, low maintenance, good flow characteristics and resistance to corrosion are claimed to have made the material competitive with steel.

So competitive has plastic pipe become that several steel companies are reported about to begin producing it. Steel firms reportedly have options on a promising new process for making glass-fiber-reinforced plastic pipe. Reinforced plastics have doubled in production in the last two years, while growth of all plastics has been an estimated 17%, and the steel companies apparently see a real future for them in pipe. U. S. Steel has a pilot plant producing and testing plastic pipe at McKeesport, Pa.; Republic Steel Corp., Youngstown Sheet & Tube Co., and Jones & Laughlin all have been reported as watching growth of plastic pipe with interest.

The big gas distribution industry is seen by plastic pipe makers as another fertile market. SPI is now at work with the American Gas Association, evolving standards that would gain acceptance in gas transmission piping. And plastic pipe makers were at the recent AGA meeting in Chicago in force.

In coal mine operation the acid wastes that would attack a metal pipe are handled without damage in plastic. And in countless industries having corrosive or acid wastes to move, plastic pipe is finding its place. Rigid plastic pipes and plastic-lined metal pipes have been used in wells yielding corrosive waters. Further uses include radiant heating, soil drainage and irrigation.

In private water supplies, plastic pipe is being given what some producers see as its most important use. Farms and suburban homes are said to install about a million well-to-house connections each year. A plastic pipe spokesman has estimated this market at $30-million worth of business annually.

All told, the extruders see a total potential of $250 million a year in the market for plastic pipe. People in the industry have estimated optimistically that they will hit this annual sales figure by 1960. But then, because the product is intended to be so durable, annual replacement sales might fall off to around $50 million, they estimate.

• **Non-critical material**—Conservation of critical metals remains a good selling point for plastic pipe. Last year in its studies into conservation the National Advisory Panel on Plumbing, a committee of the Building Research Advisory Board of the National Research Council, had this to recommend:

(Continued on page 41)

RESEARCH PROMOTERS look to results of toxicity tests of the National Sanitation Foundation. Director Tiedeman (extreme right) shows his laboratory set-up.

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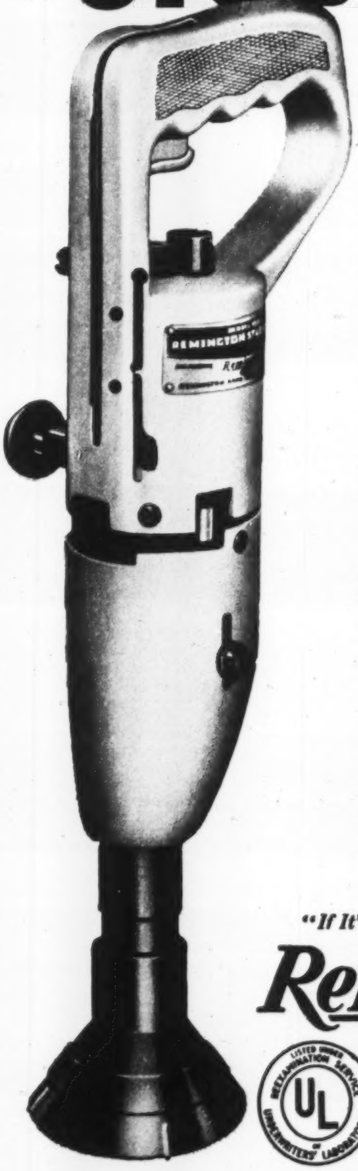

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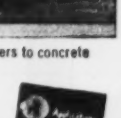

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"That the National Bureau of Standards and other recognized laboratories conduct research on the use of plastic tubing for water supply and drainage systems. Available information seems to indicate that this tubing will prove satisfactory for use in service mains. Plastic tubing is non-critical and is resistant to aggressive waters."

• Many kinds of plastic—There are half-a-dozen materials now in use by plastic pipe manufacturers. Each has its own characteristics:

• Polyethylene, which enjoys the greatest use, has as its foremost claimed advantages resistance to corrosion, flexibility, ease of installation and low maintenance costs. It has been used in all the water supply applications discussed in this article. Other uses include mine drainage, irrigation and transmission of chemicals.

• Butyrate is also claimed highly resistant to corrosion and electrolytic action. In the oil fields it carries brine, crude oil and natural gas. It has also found use in gas mains.

• Saran (polymers of vinylidene chloride) is said to resist corrosion by chemicals, and its ease of installation has made it applicable to use in plants of many industries—rayon, electroplating, pharmaceutical, food and others.

• Styrene copolymers extrude into a pipe with characteristics generally the same as those of butyrate pipe. It has found use as cold water pipe for irrigation as well as in oil applications.

• Reinforced polyester pipe is made of polyester resins reinforced by glass fiber. Pioneers in the development of reinforced plastic pipe have been Reflin Co., of Gardena, Calif., U. S. Plywood Corp., New York, N. Y., Spiral-Glas Pipe Co., New Brunswick, N. J., and Perrault Brothers of Tulsa, Okla. Their fiber-reinforced thermo-setting plastic pipe is "not to be confused with extruded thermoplastic pipe." Perrault's pipe, as an example, is centrifugally spun at 200 deg F and claimed able to withstand a temperature range −65 to +300 deg F. Working pressures of 200 and 400 psi are given by the manufacturer for 3½ and 4½-in. diameters of two different wall thicknesses.

• Rigid vinyl, a recent entrant in the pipe field is claimed to have high impact strength even in sub-zero temperatures, and to carry acids, alkalies and alcohol without damage.

• Progress in Michigan—State health officers and sanitary engineers in Michigan were given something of a progress report on the Sanitation Foundation research into toxicity of plastics early in March.

To supplement that information, W. D. Tiedeman (referred to above as the laboratory director) has given ENR this statement, containing some additional information:

"Extraction tests are being made using the most aggressive known types of natural waters to determine whether or not such waters become toxic or insalubrious as a result of prolonged exposure to plastic pipe. A search for extracted substances is being made by chemical and similar methods and, also, such water is being fed over long periods to test animals, using controls and making the standard examinations to determine possible harmful effects.

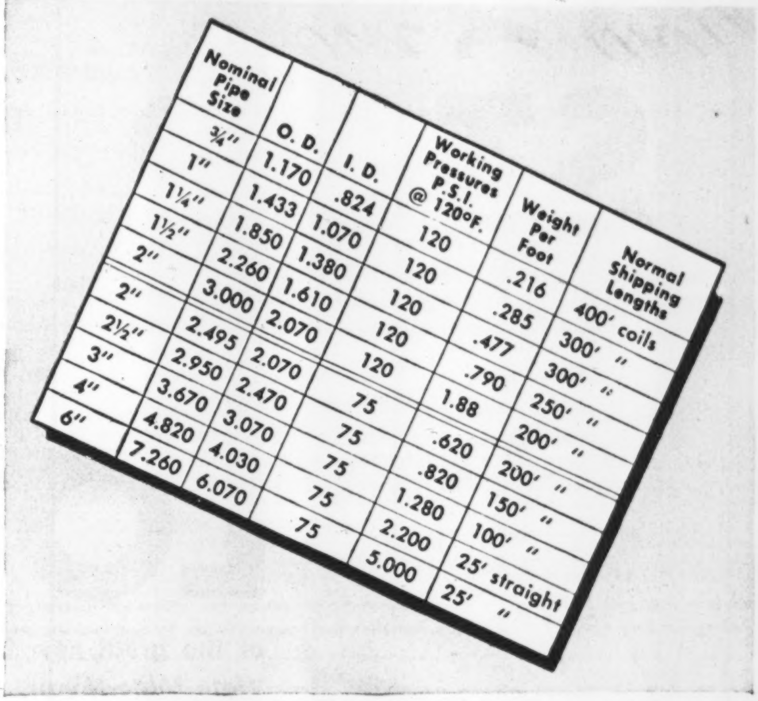
"Aggressive waters also are being recirculated in systems of plastic pipe to determine possible effects upon the odor and flavor of the water. A similar system of galvanized steel pipe is being used as control. The results are being determined by a trained taste panel of men and women.

"Other studies are being made, including determinations of the possible effects of micro-organisms reputed to attack plastics, on various types of pipe and also the possible effects of plastic pipe upon the persistence, growth, or removal of micro-organisms in water.

"In the final report, it is our intention to obtain the cooperation of other agencies now testing the physical and other properties of plastic pipe with a view to assembling into a compact report all of the information an engineer will need about plastic pipe, including some reliable means of identifying satisfactory products."

• Extruders fostering the research—The following list of plastic pipe makers who are backing the toxicity and taste and odor research at Ann Arbor may be taken as generally interested also in the SPI effort to evolve pipe and fitting standards:

American Hard Rubber Co., New York, N. Y.; Ancsite Company, Chicago, Ill.; Bakelite Company, Div. Union Carbide & Carbon Corp., New York, N. Y.; Carlon Products Corp., Cleveland, Ohio; Clopay Corp., Cincinnati, Ohio; Crescent Plastics, Inc., Evansville, Ind.; The Dow Chemical Co., Midland, Mich.; E. I. du Pont de Nemours & Co., Inc., Wilmington, Del.; Firestone Plastics Co., Pottstown, Pa.; Kralov Plastic Pipe Co., Los Angeles, Calif.; B. F. Goodrich Chemical Co., Cleveland, Ohio; Goodyear Tire & Rubber Co., Akron, Ohio; Industrial Synthetics, Garwood, N. J.; Johnson Plastic Corp., Chagrin Falls, Ohio; Koppers Co., Inc., Pittsburgh, Pa.; Elmer E. Mills Corp., Chicago, Ill.; Monsanto Chemical Company, Springfield, Mass.; Naugatuck Chemical Div., U. S. Rubber Co., Naugatuck, Conn.; Plastex Pipe and Extrustion Co., Inc., Columbus, Ohio; Tennessee Eastman Co., Div. of Eastman Kodak Co., Kingsport, Tenn.; and Yardley Plastics Co., Columbus, Ohio.



Nominal Pipe Size	O. D.	I. D.	Working Pressures P.S.I. @ 120°F.	Weight Per Foot	Normal Shipping Lengths
¾"	1.170	.824	120	.216	400' coils
1"	1.433	1.070	120	.285	300' "
1¼"	1.850	1.380	120	.477	300' "
1½"	2.260	1.610	120	.790	250' "
2"	3.000	2.070	120	1.88	200' "
2"	2.495	2.070	75	.620	200' "
2½"	2.950	2.470	75	.820	150' "
3"	3.670	3.070	75	1.280	100' "
4"	4.820	4.030	75	2.200	25' straight
6"	7.260	6.070	75	5.000	25' "

SPECIFICATIONS (These happen to be Carlon's) are about as numerous as plastic pipe manufacturers. One problem the growing young industry must face is the need to standardize. Progress is reported toward that end.

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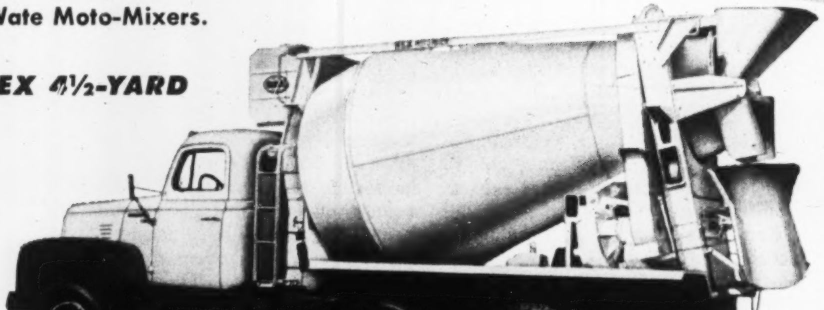

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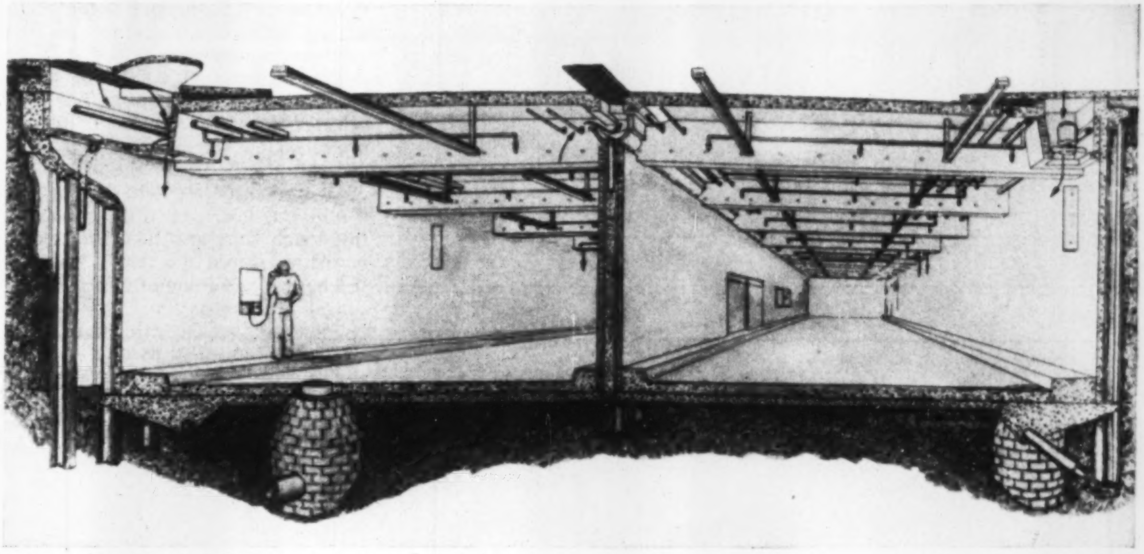


TUNNEL CROSS-SECTION shows ventilating system—unit fans and intake chambers located on each side at the roof, and the exhaust vent grating at top center. Arrows indicate the flow of air. Concrete sidewalls are shown at left inside precast concrete liners. Deck beams for the street above are also precast.

Seattle cuts tunnel costs with unit ventilation

Air is not "the cheapest thing in the world" when it comes to ventilating a tunnel.

Proof is the selection of the ventilating system for the Battery St. tunnel in Seattle, Wash. With a choice of three different systems, designers chose unit blowers—as opposed to methods using a central air supply—at a saving of over $600,000. Total cost of the project is $2.8 billion.

The 2,134-ft tunnel has dual tubes—each with a 25-ft roadway and a 3-ft emergency walk on one side. Construction is by the cut-and-cover technique using a novel method—precast concrete liners—to protect abutting property.

The tunnel will link the Alaskan Way viaduct on the south to the Pacific Highway on the north, via Aurora Ave. When the tunnel is completed, traffic will be able to skirt Seattle's business district for a total of 2.5 miles without making a single major intersection.

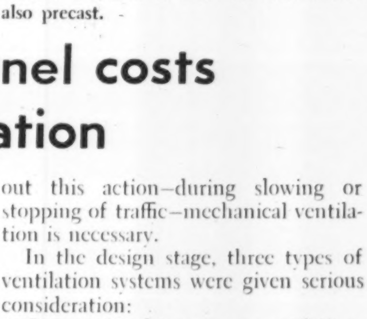
Topography of the area dictated the use of a tunnel for this particular stretch. Heavy grades made continuation of the viaduct impracticable. The tunnel is the only solution for the elimination of traffic lights and overpasses for important cross streets.

• Ventilation studies—Engineering studies indicated that normal piston action of traffic probably would be adequate for tunnel ventilation. Without this action—during slowing or stopping of traffic—mechanical ventilation is necessary.

In the design stage, three types of ventilation systems were given serious consideration:

Conventional transverse ventilation, supplying air through ducts to outlets located along the length of the tunnel. Exhaust would have been through a second series of ducts—also for the length of the tunnel, with intake and exhaust fans located in a central blower building. This system had an estimated cost of $750,000.

It was rejected because of lack of space for the duct systems in the rectangular cross-section of the tunnel; circular and horseshoe shaped tunnels generally have ample "waste" space for ducts. In this case they would have had to be run under the paving. In addition, this system would have meant a separate ventilation building on high-cost property.



SEATTLE: Tunnel is link in route around business district.

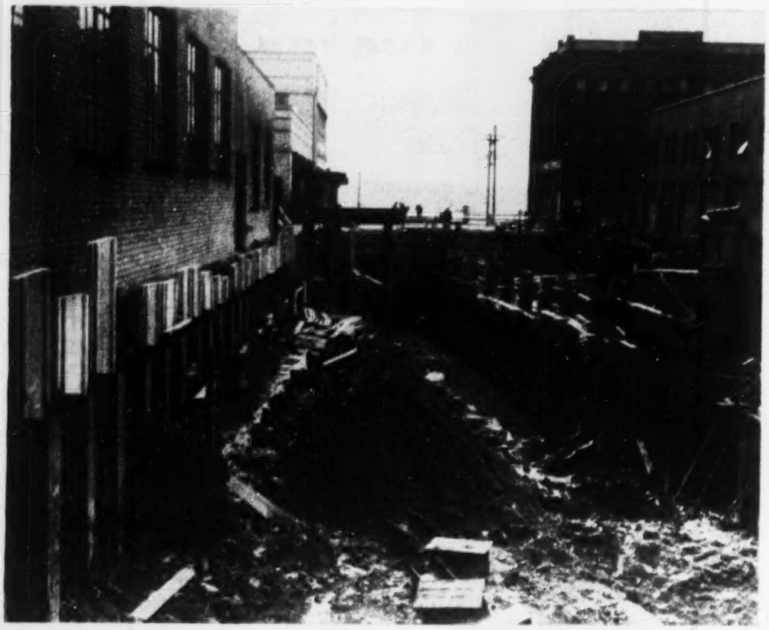
In the second method—the longitudinal system—air was to be supplied at both ends and exhausted at a midway point. Cost was figured at $300,000. This plan was discarded because air movement for half of each tube would be opposed by the piston action of moving traffic (traffic moving after a halt when the system would have been activated).

The system finally selected—to cost about $130,000—calls for 72 axial-type supply fans each with its own intake chamber. Chambers and fans are located at the side of each roadway at an average spacing of 58 ft. Intake gratings are located in the sidewalk area of the street above.

The type of construction—cut and cover—made easy the forming of the intake chambers and the setting of the fans.

Under the plan adopted, several of the fans can be out of service without materially affecting the overall system. Both the transverse and longitudinal systems would have required standby blowers for use when the blowers in service were being maintained or repaired. This would have required considerable space in the central ventilation building.

Engineers figure that five duplicate fans and motors—a comparatively small package—will cover all maintenance and repair needs.



TUNNEL CONSTRUCTION is by the cut-and-cover method using precast concrete liners for protection of abutting property (left). In the background is a temporary bridge for an important cross-street.

In addition, fans may be serviced from the street above through the grate opening without affecting traffic flow.

Exhaust gratings—2 ft wide—are in the center of the tunnel, venting to the center of the street above. Exhaust fans were considered as a possibility—instead of intake fans—because of the quicker elimination of smoke in case of fire. Engineers concluded, however, that this method would provide less positive mixing action during normal ventilation. Also, there was a possibility of air short-circuiting across the top of the tunnel. The velocity supplied by the intake fans prevents this.

Surface intakes could lead to trouble in a heavy snowstorm but Seattle engineers decided that the record—a 6-in. fall exceeded only 11 times—didn't show an excessive risk. They concluded that the gratings would pass most of the snow as it fell and the rest could be removed by maintenance crews. In an emergency the tunnel would be closed to traffic.

• **Fan operation**—Fan operation is automatic, starting when the carbon monoxide content rises above a predetermined level. Manual controls are provided for flexibility. It is expected that alternate fans will be operated during rush hours to keep down smoke haze and exhaust odors—common causes for complaint but not actually dangerous.

Adoption of the air supply system of ventilation emphasized the necessity for a positive fire control plan. Result is an automatic dry-pipe sprinkler system of the deluge type in eight sections.

Operation is by heat-responsive devices. In addition, an automatic alarm system will be connected to the central control chamber and the Seattle alarm system.

Further protection will be provided by dry-chemical extinguishers located at 325-ft intervals along the tunnel.

• **Construction details**—Field construction used a couple of refinements in the soldier-beam method of cut-and-cover work.

The sequence of operations called for placing 12-in. H-beams on both sides of the street the length of the project. However soil conditions—fine clay-like glacial silt for the first 16 to 20 ft—prevented accurate driving. As a solution, holes are drilled through this tough layer and then the soldier beams are driven the rest of their 30 ft length to a minimum of 5 ft below subgrade. They are on 3 ft 9 in centers and are capped with a reinforced concrete beam—first used as a wale and later used as a seat for the deck beams.

Precast concrete liners—replacing conventional wood sheeting—were placed between the piles, as excavation proceeded, to protect abutting property.

Concrete sidewalls will be poured later through holes left in the concrete wale.

Deck beams also will be precast and will serve both as struts between side walls and as upper slab supports.

• **Credits**—Cost of the subway is divided between the city of Seattle and the State Highway Commission. Supervision of construction is by commission engineers. Design and preparation of plans and specifications were done by the city engineering department, with H. W. Tyler as principal design engineer. Work was begun under R. W. Finke, the city engineer, who has been succeeded by William E. Parker. Contractors are the Morrison-Knudsen Co., Inc., and Rumsey & Co.

Ventilation design criteria

Control of carbon monoxide concentration is simplified by considering the tunnel as eight separate sections. Samples of air in each section will be taken continuously; when the concentration of carbon monoxide reaches two parts in 10,000 in any section, fans in that section will start automatically. The fans will continue to operate for two minutes or until the carbon monoxide content goes below two parts in 10,000.

Should the buildup of toxic gases rise to four parts per 10,000, a sign reading "Subway Closed" will stop traffic at both entrances. Traffic will then be diverted to surface streets. At the same time a warning will be relayed to the police alarm system. In case of local power failure, a "power off" warning is likewise relayed to the police alarm system.

The system of exhausting directly into the street above brought up two possibilities; the fouling of the air in the street and recirculation of contaminated air in the tunnel.

To check these possibilities, tests were run on the street air with a portable analyzer during hot weather when wind velocity was virtually zero and, at the same time, the street was filled to capacity with one-way traffic. The tests showed a maximum concentration of two-tenths of one part of carbon monoxide in 10,000 parts of air. Seattle engineers concluded that this indicated a rapid dispersal of the gas and, even if doubled by subway traffic, the concentration would not reach alarming proportions.

Fans used—33 in. diameter—are rated at 15,400 cfm at a static pressure of ¼ in of water. A discharge velocity of 2,600 fpm is sufficient to carry the air to the tunnel pavement at which point it picks up the exhaust gases and then exhausts through the tunnel roof.

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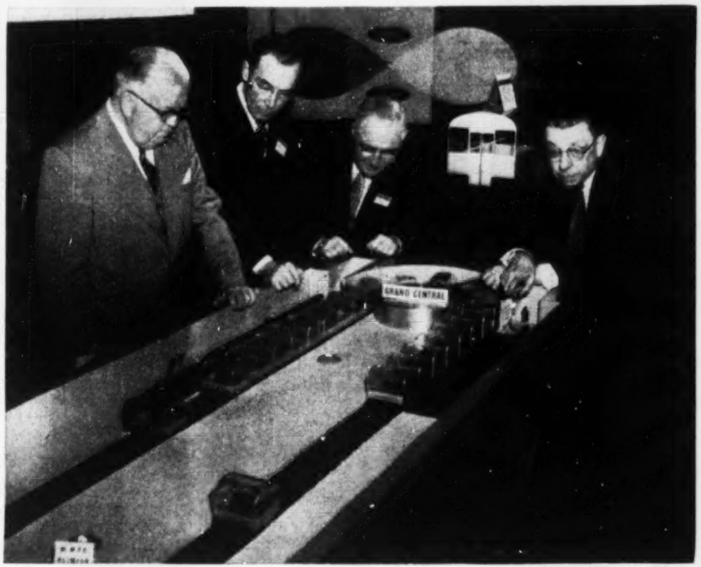

Wide World Photo

Conveyor proposed to replace New York shuttle

New York City's long-suffering subway riders again are being dazzled with a scheme to replace the antiquated shuttle between the Times Square and Grand Central areas.

Latest idea—developed by the Goodyear Tire and Rubber Co. and the Stephens-Adamson Manufacturing Co. —is an endless conveyor belt moving small passenger cars. Each car provides 12 seats and room for five standees.

This plan is the latest of a number that have been proposed for improvement of this stretch of the subway system. The first successful application of the idea was carried out at the World's Columbian Exposition in Chicago in 1893—60 years ago—on a pier extending out into Lake Michigan.

Backer of the plan is the city's chief of the Board of Transportation, Col. Sidney Bingham (at right in photo).

Not shown in the picture is the typical New York subway rider who is likely to believe he would be one of the five that would have to stand.

Waterworks men act on plans for improvement and expansion

Pittsburgh debates water authority while other cities consider supply and treatment

Many of the factors of science, economics and politics involved in running a municipal water system arose to plague city officials throughout the country this week. Here's the way the situation looks:

- Pittsburgh, Pa., decided to transfer its water system to a separate authority to permit construction of a new rapid sand filter plant. Now the city has decided that perhaps the old slow sand filters can be rehabilitated and that the transfer to the authority not necessary.
- Apportionment of costs for increasing their common water supply is an issue before city officials of Youngstown and Niles, Ohio. This means further delays in the expansion of the area's principal water supply source, the Mahoning Valley Sanitary District.
- Los Angeles' fast increasing need for more water was recognized by the Board of Water and Power Commissioners when it authorized the issuing of revenue bonds up to $13 million for

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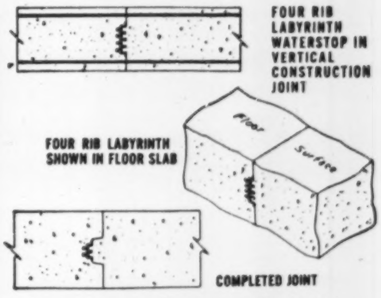
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expansion of the municipal water system.

- Oklahoma City., Okla., called off a $2-million city bond election set for late last month to provide funds for meeting a threatened water shortage. Reason: it rained.
- Nashville and Davidson County, Tenn., residents have been drinking fluoridated water since February but they just found out about it. Officials feared imaginary tastes and odors would crop up as a result of fluoride addition so they waited until the practice was well established before breaking the news. Also on the fluoridation front, Milwaukee and Cincinnati may start treating their respective water supplies shortly.

Biggest issue, money-wise, is the Pittsburgh filter and water authority controversy.

- **Pittsburgh background**–Main issue is the old slow sand filter plant. Built in 1908, it is made up of 56 units of which 42 are operable; 10 units are not used while four are structurally unsound (3 have collapsed roofs and one is so dangerous that workmen refuse to enter it for cleaning).

The plant has had little maintenance for the last 20 years.

Two engineering firms working independently – Parsons, Brinckerhoff, Hall and MacDonald of New York and Morris Knowles, Inc., of Pittsburgh–recommended ten-year plans for water works improvement, each including construction of rapid sand filters to replace the present slow sand units.

These plans would cost about $27 million.

Since the city's present borrowing limit is $26 million, adoption of these expedients would just about bankrupt the city.

Solution was the formation of a Municipal Water Authority to take over the water system. The authority has now declared that it favors rehabilitating the old slow sand filters at a cost of $13 million–a saving of $14 million over the engineers' recommendations.

This report, however, has got the authority into hot water with various civic organizations which supported the formation of the authority because they believed it was the only way that the city could solve its problem. Now they wonder if the transfer was necessary or wise.

- **Costs debated**–Money is also the cause for a hold-up of plans for expanding the water supply of Youngstown and nearby Niles, Ohio.

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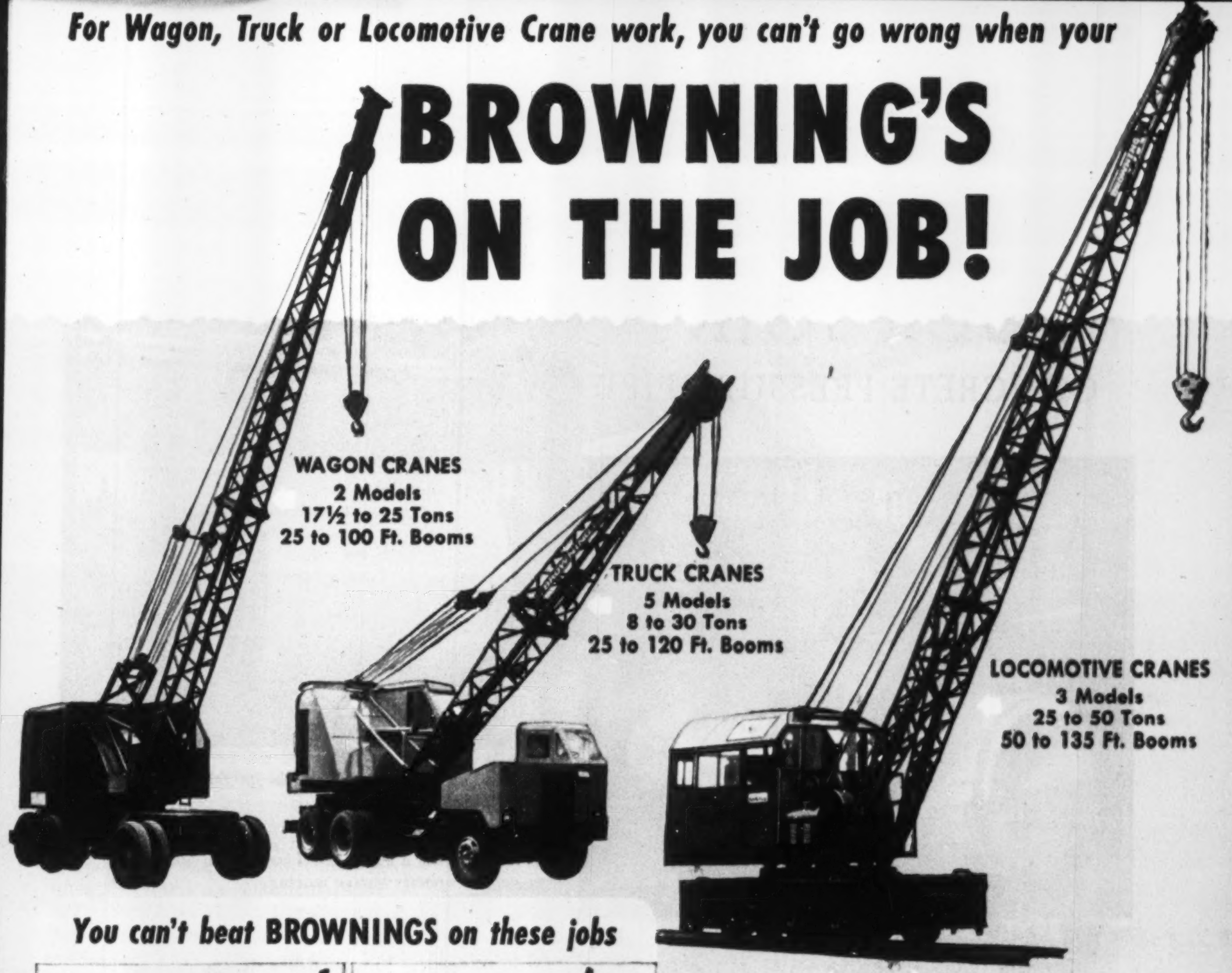
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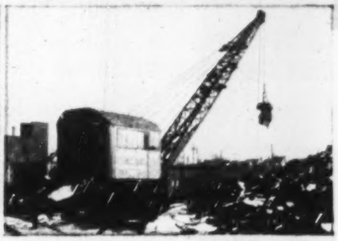

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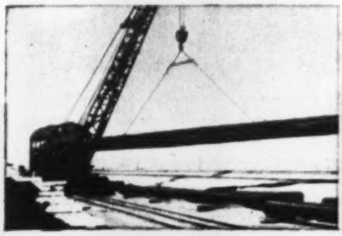

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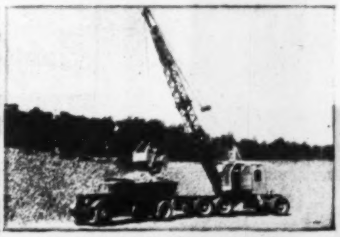

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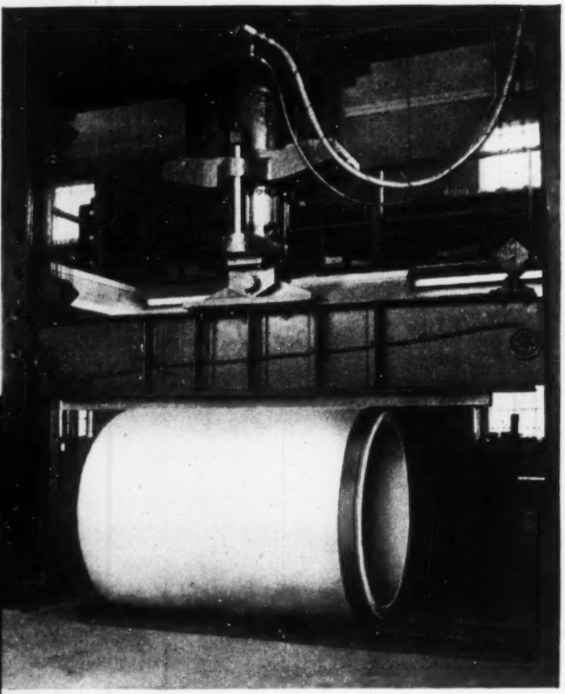

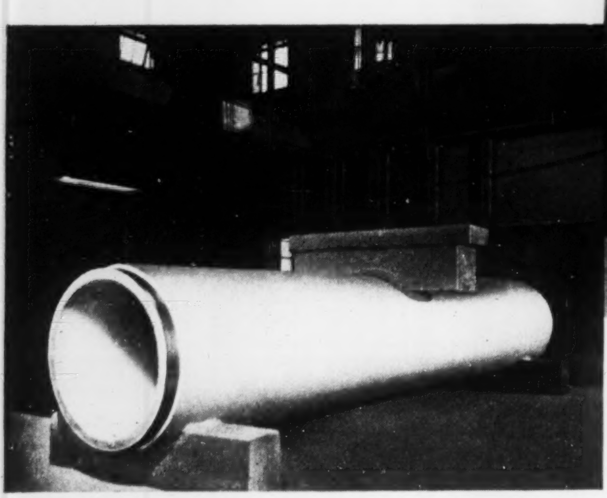

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partment of Natural Resources of a possible water shortage this summer, officials of the two cities can't agree on apportioning the $6-million expansion cost of the Mahoning Valley Sanitary District.

A three-judge court of jurisdiction over the affairs of the district unanimously held that Youngstown should pay 83 per cent and Niles 17 per cent of the cost. At stake—the decision is being appealed by Niles—is the start of expansion work on Meander Reservoir, financing of new processing equipment, and the link to Berlin Reservoir which would insure adequate water supplies.

While Youngstown and Niles argue, Los Angeles has authorized a $13-million revenue bonds issue for a water system improvement program.

The bonds will be paid for out of future earnings of the water system. They will be issued to cover a proposed capital expenditure program for the fiscal year beginning July 1, 1953.

Need for the program is indicated by an increase of 60% in water consumption in the last ten years. Population increase for the same period is about 35%.

• **Bonds canceled**—Bonds for another purpose were scheduled for consideration by voters of Oklahoma City, Okla., last April 28. In this case proceeds would have been used to develop emergency water sources to meet the danger of a water shortage. However, the rains came and the election was postponed.

Money from the $2-million issue would have been used to drill 80 shallow wells and to construct transmission facilities to carry the well water to Lake Overholser, the city's principal water supply. At the time the bond election was proposed, there was sufficient water in the lake to last only until Sept. 1. The emergency program would have gotten under way sometime in May.

The plan will be revived when water reserves fall below five-month mark.

• **Fluoridation**—One way to meet expected objections to water works practices was demonstrated by officials of Nashville and Davidson County, Tenn.

The city council approved addition of fluorides to the area's water supply last February. Equipment and supplies were ordered and installed several months ago.

With no formal announcement, the program was put into effect. There were no complaints of bad taste or odor.

City officials were well aware of un-

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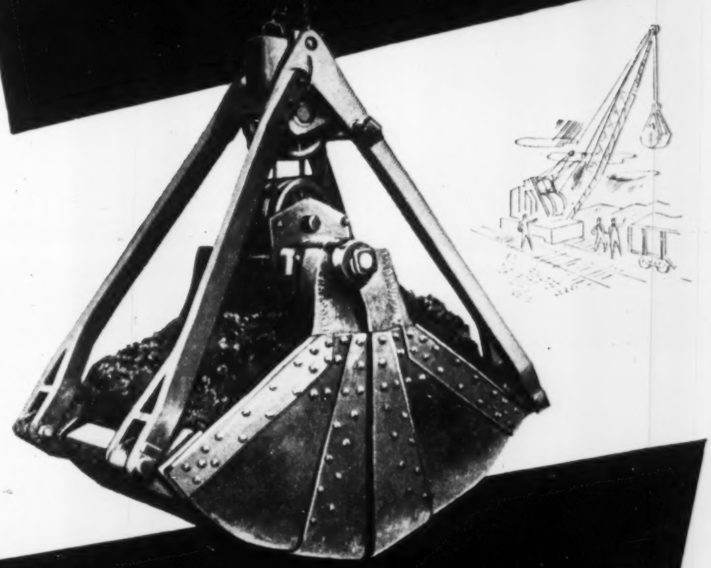

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usual tastes in water imagined by users on the basis of association or suggestion. The quantity of fluoride added (1ppm) is not enough to make any actual difference in taste or odor.

Fluoridation was approved by Milwaukee voters in a referendum last month by about a 9 to 5 margin. Next move is up to the city council which has to approve the practice.

In Cincinnati, the city council authorized the city manager to go ahead with the fluoridation of the city's water. Opponents of the measure have 30 days in which to file a petition for a voters' referendum to repeal the ordinance.

In both cities, addition of fluorides will be limited to 1 ppm.

• **Bid okayed**—The water works improvement program of Toledo, Ohio, got a boost recently when the city council accepted the proposal of a New York syndicate to buy a $3.4-million revenue bond issue. Interest rate for the successful bid is 2.3104% with an offered premium of $1,723.

Bonds are for 20 years.

Engineer loses action over $10,500 fee

A Wilmington, Del., engineer was denied a $10,500-fee from the city of Denton, Md., for engineering work in connection with water and sewer improvements for the town. The improvements were never constructed.

Swithin W. Buckley contended in his suit that he was entitled to engineering fees he would have received if the town had proceeded with the work. The program would have cost about $313,000.

It was brought out in the suit in Federal Court in Baltimore that the engineer had received $16,300 in fees for his plans from the federal government and another $2,690 from Denton.

The town decided it could not afford the improvements and terminated Buckley's services.

Subway plan revived again for downtown Cleveland

Long dormant plans for a subway in downtown Cleveland, Ohio, came to life again last month when the Ohio state legislature authorized Cuyahoga County commissioners to submit subway financing to the voters.

Cost of the project has been estimated at $25 million. The subway, part of the East-West rapid transit system, would run from the Terminal Tower to Playhouse Square. Cars to carry pedestrians on a conveyor belt system have been discussed as one method of conveyance (see p. 47 for a similar scheme in New York).

First talk of the underground passage began in 1909 with the issue put to the voters in 1920. It was beaten then because residents were of the opinion that the suburbs should foot part of the bill.

Colonial city advised to build state hospital

The restored Colonial city of Wiliamburg, Va., was advised that if it wanted a state hospital moved out of the city limits, the city should arrange to build facilities for the state elsewhere.

Williamsburg is the Colonial capital restored by the Rockefellers at a cost of some $25 million.

For several years Colonial Williamsburg, Inc.—the company set up to do the restoration work—has been trying to get the state to move the Eastern State Hospital for the Insane from within the restored area.

Now Baskerville and Son, Richmond architects, have suggested in a study made for the corporation that Colonial Williamburg negotiate to complete a new state hospital under construction at Dunbar. The completed buildings would be rented to the state at a nominal figure and the state would agree to purchase the facilities over a ten-year period.

Estimated cost to complete the Dunbar plant is more than $23.6 million.

Los Angeles goes ahead with monorail study

Los Angeles hopes to get a definite answer on the value of a monorail system of public transportation from a study by Coverdale & Colpitts, New York engineering firm.

The engineers recently signed an $85,000-contract with the Los Angeles Metropolitan Transit Authority for an eight-month engineering and economic survey on the feasibility of the system.

Associated with Coverdale & Colpitts will be Gibbs & Hill, another New York engineering firm, who will study financing and operating costs, and Donald Baker, Los Angeles engineer, who will survey possible routes.

The study is to compare monorail with other possible transit methods, determine costs, routing, fares, feeder network revenue and operating expenses, and estimate the amount of

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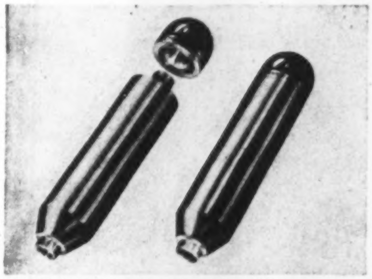

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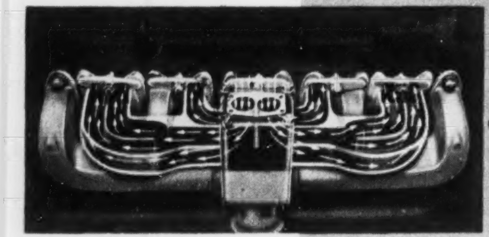

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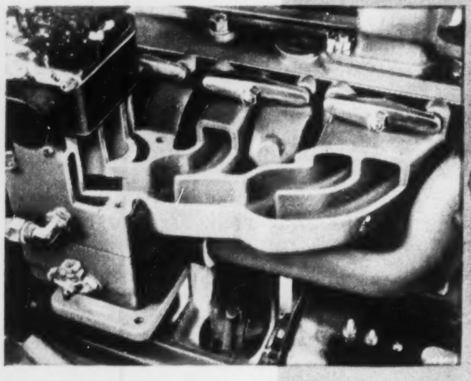

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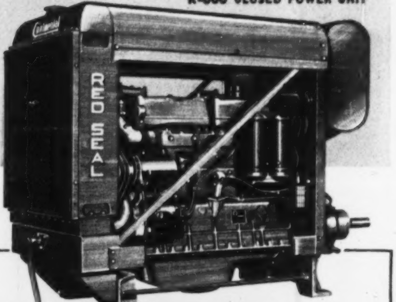

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revenue bonds that could be supported.

• Background—The transit authority was created by the state legislature in June, 1951, but its members were not appointed by Governor Warren until March of last year. Operating funds were supplied by Los Angeles County—$50,000, administrative expenses; $100,000, engineering studies.

As set up now, the authority is limited to a 44-mi route between the San Fernando Valley, Los Angeles and Long Beach. The Los Angeles section follows the Los Angeles River channel.

Future plans of the authority call for enlarging its scope to include the whole of Los Angeles County.

Municipal briefs . . .

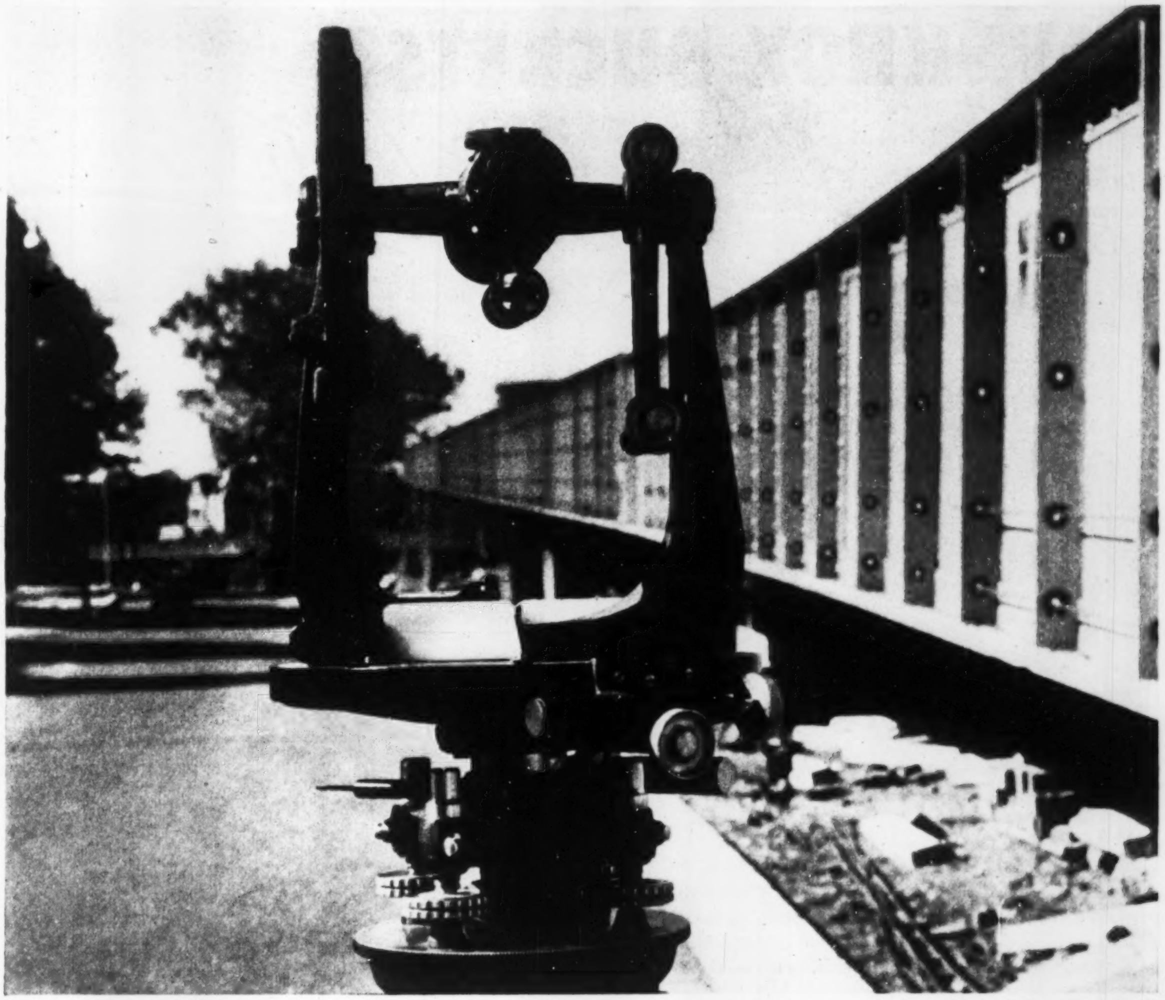
• Providence tunnel—The New York, New Haven and Hartford Railroad has begun an engineering study to determine whether a Providence, R. I., R.R. tunnel can be converted to vehicular use. If feasible, the city is interested in possible use—as an express highway—of the two-mile tunnel and bridge connections across the Seekonk River into East Providence.

• Produce mart—A contract for $1,750,000 was let to the Robinson Construction Co., St. Louis, Mo., for a wholesale produce mart near Buechel, Ky. Construction is expected to start this month. Construction time will be about nine months.

• Sewage disposal—The Nashville, Tenn., city council late last month authorized the sale of $1 million in short term notes to finance the start of construction on the city's $11-million sewage disposal plant.

• Canadian building—The Canadian government will begin construction this year on an 11-story, $6-million office building in Edmonton, Alta., The House of Commons already has voted $1 million of the funds.

• Micro-straining—The annual report just received from the Greater Winnipeg Water District in Manitoba, Canada, reports without further explanation that "experimental work which had been done on micro-straining, while showing that certain improvements in quality of water could be made, indicated that under present conditions, the advantages that could be obtained from micro-straining would not justify the expense of such a project".



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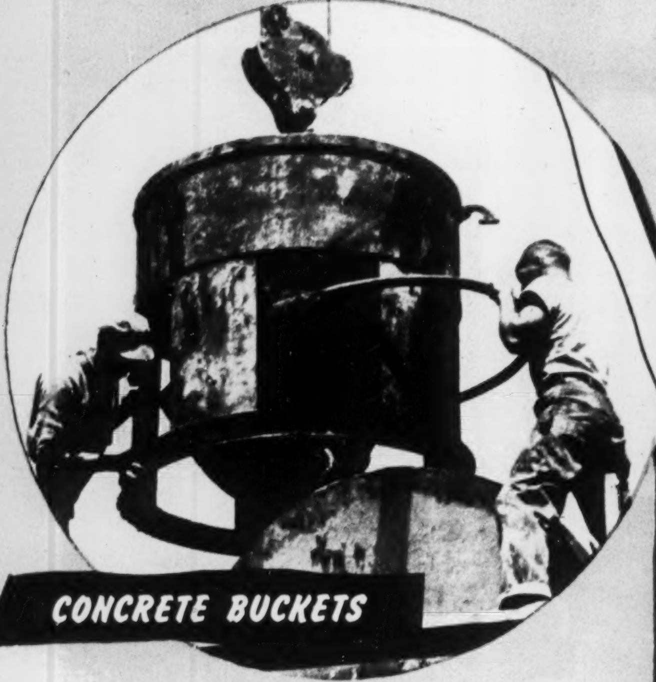
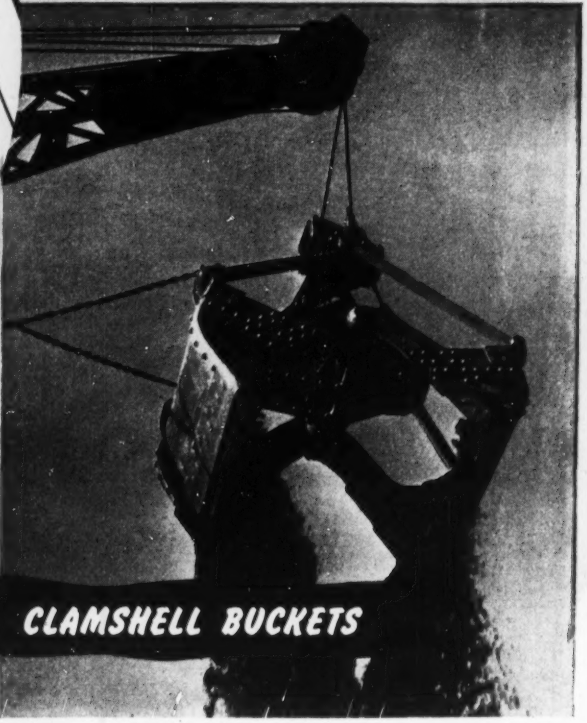


CONCRETE BUCKETS



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The Blaw-Knox CAC Concrete Buckets with air-operated clam gates are designed for high speed, economical operation on big-job specifications. They're specifically built for low cost handling and placing of harsh, low slump concrete containing coarse aggregate and air-entraining agents. Furnished in 2, 3, 4, and 8-cu. yd. sizes.

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YOUR BLAW-KNOX DISTRIBUTOR will gladly help you select the right bucket to cut costs on your job. See him today.

You can increase your crane output by using the clamshell bucket that's built for the job. Whether it's handling all classes and types of aggregates, dredging, barge clean-up—for hard digging or general purpose use, there's a Blaw-Knox Bucket that will give you the most profitable crane output on any specific operation. That's why so many contractors use Blaw-Knox engineering service—backed by many years of experience in clamshell bucket application—to help them select from the wide variety of sizes, weights and types, the bucket that meets all their requirements. Let us help you increase your crane output, too.

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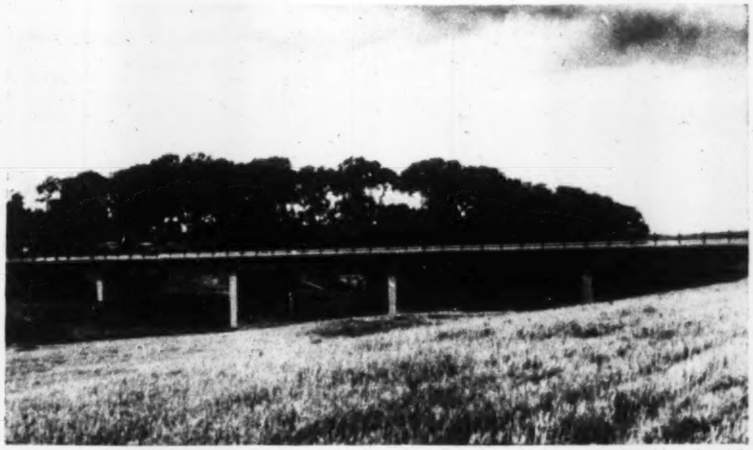


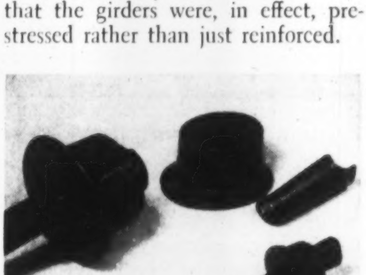
CONCRETE HIGHWAY BRIDGE in Sweden has five 64-ft spans reinforced with end-anchored bars that control crack size effectively despite high working stresses.

Reinforcement used at high stresses in concrete bridges abroad

Ake Holmberg
Skomakargatan & Lund,
Stockholm, Sweden

Four concrete bridges reinforced with ring-and-wedge anchored bars, at working stresses of 43,000 psi, have proved successful in Sweden. Cracks in the concrete structures rarely have exceeded $\frac{1}{64}$ in.

High-tensile strength reinforcing bars with ring-and-wedge anchors on their ends were placed with the usual stirrups in girder forms built on falsework. Concrete was then placed, and when the falsework was removed, the dead load of the girders stressed the rods, held firmly in their anchors, so that the girders were, in effect, prestressed rather than just reinforced.



RING ANCHORS for high tensile strength reinforcing rods are applied in the shop with wedges and aid in cold-working the rods to raise the yield point.

Swedish engineer Carl Forssell developed this method of anchoring reinforcing in concrete structures, and test results have been published in "Schweizer Archiv fuer angewandte Wissenschaft und Technik," Heft 7,16 Jarge., 1950. Diameter of the flange of the ring anchor is about three times the diameter of the reinforcing bar. Tests show that this diameter spreads the load so that concrete with an ultimate strength of 3,000 psi does not fail at the anchorage until the high-tensile steel is stressed to 170,000 psi. Also, 1,800-psi concrete does not fail at the anchorage until reinforcement is at 106,000 psi, and 4,800-psi concrete holds up until reinforcement is stressed to 233,500 psi. Anchorages must be placed far enough away from the surface of the concrete to permit the concrete to develop sufficient resistance to the bar forces. They must not be located in concrete in tension.

Cracks in the concrete are controlled because the ring-and-wedge anchorages prevent the ends of the reinforcing bars from slipping. Tests have shown that after the formation of cracks in the structure, forces along the length of the anchored reinforcing bars are nearly irrespective of the shape of the moment diagram.

As a precaution against harmful cracks in outdoor concrete structures, Sweden's Royal Board of Roads and Waterways has so far not permitted a stress in reinforcement bars higher

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than 43,000 psi. However, the cold-worked reinforcing bars used have a yield point of 100,000 psi, which would allow a working stress of 57,000 psi at a 1.75 safety factor. Using the Forssell method, for this working stress in the steel, 3,000-psi concrete, at a safety factor of 3, would be adequate.

From an economic point of view, the ring-and-wedge anchored reinforcing has proved advantageous in Sweden. Reinforcing bars can be cold drawn at low cost, and the increase in strength is largely paid for by the cost of the rings applied in the shop for the cold drawing. On the erection site, this method of reinforcing does not require any departure from normal working procedure. There are, of course, appreciable savings in steel as compared with the ordinary reinforcing job.

It is believed that this method has a distinct advantage over prestressing in case of application. Furthermore, the load at failure is independent of whether a beam has ordinary reinforcing or is prestressed.

GIRDER BRIDGE, with three 57-ft spans reinforced with ring-anchored high tensile strength bars, has served satisfactorily for more than a year.

Permanent freezing

Russian reports claim the use of permanent freezing of soil embankments built on alluvial soil for a dam and hydroelectric station being constructed on the Irtysh River in Siberia. Winter temperatures are as low as 40 deg below zero, and the refrigeration process turns on when the temperature rises to the freezing point. The project, in the East Kazakhstan region, is located in an area where atomic plants are rumored to be in the process of construction.

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FORMING WATER GATES, for passage of small boats and drainage of salt water, was the only case in the whole causeway where concrete was used.

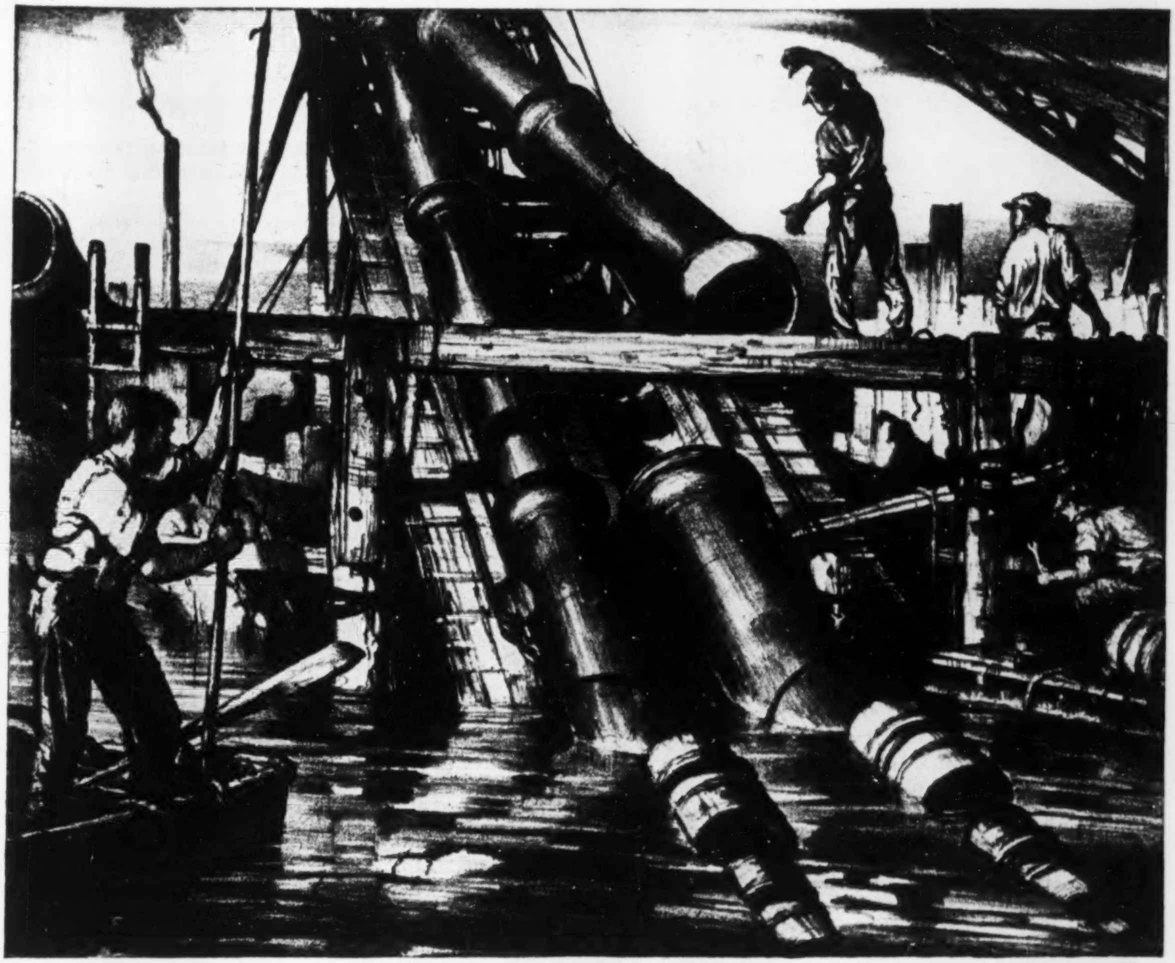
Reclaiming land from salt water bay; fresh river water will flush salt

Reclaiming land from the sea for future cultivation is a necessary and practicable business in some parts of overcrowded Japan. At Okayama in southwest Honshu, the Japanese mainland, a salt water bay and the surrounding tidal flats are slowly being reclaimed with the help of a fresh water river to flush out the salt water before the area will be drained finally after several years of fresh water inundation.

Rocks thrown into the shallow bay formed the base of the one-mile-long dike, 33 yds wide at the top. Sand was pumped in later to fill up voids between the rocks. Concrete was used only at two water gates built for the passage of small boats and to drain the flushed out salt water as the fresh river water built up a head behind the dike, where a fresh water lake thus formed will have an area of 2500 acres all of which can be turned into farm land as silt carried down from the river builds up the lake bottom.

A new railroad will be built over the dike. This will shorten the route greatly from Okayama to its outer harbor, a regular steamship port.

BUILDING MILE-LONG CAUSEWAY across Japan's Okayama Bay with rocks thrown from barge into shallow water was a long but cheap process. Sand was later pumped into the rock dike.



Lithographed on stone for U. S. Pipe and Foundry Co. by John A. Noble, A. N. A.

WHEN A CAST IRON water, gas or sewer line crosses a stream flexible joint pipe is frequently used. Joints that will deflect enough to meet installation and post-installation conditions and remain tight are most important in a submarine installation.

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MEN AND JOBS

Cunningham to be president of AWWA; new chief a water engineer since 1920

When the American Water Works Association meets in Grand Rapids, Mich., next week, president Charles H. Capen will hand over the gavel to Morrison B. Cunningham, of Oklahoma City (cover).

The next president, who is 56, has been superintendent and engineer of the Oklahoma City Water Department since 1937. But he's been with the department since 1920, when—with two years of World War I Naval service behind him and a brand-new civil engineering degree—he got a job as assistant superintendent.

At that time, there were about 91,000 people in the 15 sq mi served by the water department; 158 mi of meter mains and water services; 168 hydrants, and 13,500 meters. Today the department's service area has almost quadrupled; main mileage has increased to 715 mi.; hydrants have increased almost 20 times; and meters have jumped to over 70,000.

• **Short-lived meters**—In 1920, says Cunningham: "We considered a water meter to have from three to five years service, largely because of the poor quality of treatment given the water, and because so many of the water-meters were of old designs. There has been a great improvement in the water quality, and the meter manufacturers have greatly improved their product. So the average ⅝ meter today can be counted on for 15 years service in average home use, with very little field maintenance."

When you ask Cunningham what his toughest problems have been, he says: "Keeping construction ahead of growth, research, lake biology, conservation, taste and odor control, fish propagation, elimination of colored water in distribution mains, extending life of water meters."

This sounds pretty much like the problems of any large and growing city. But when you go on to ask Cunningham what he has done to meet these problems, the story is a bit different:

• **Research**—"Our willingness to recognize problems and do something in research to find a solution has been our answer. . . . We spend a great deal of time on research to solve problems which arise. My associates, as well as consulting engineers, have helped us perform much better service to customers as a result of research on tastes and odors and corrosion control in our water softening and filtration plants. For the last three years our water has been supplied to the public with no taste or odor, in spite of algae growths at times in our surface reservoirs. This is because of control by copper sulphate and particularly by activated carbon."

Since he became AWWA vice-president last year, Cunningham has flown about 20,000 miles, mostly to section meetings of the association. He says that this has given him chance to see "the wide differences in water supply, water quality, and per capita use of water."

"Supplies, as would be expected, range from wells to springs direct from river flow or diversion from rivers to reservoirs. Some use infiltration galleries—others recharge ground water from river flows."

• **Hardness**—"The widespread difference in hardness is interesting. For example, most have soft water having a total hardness of 50 ppm or less. On the other hand, I found some supplying the customers with water having a total hardness of 400 to 500 ppm, and the customers were satisfied. Detergents were used instead of soap."

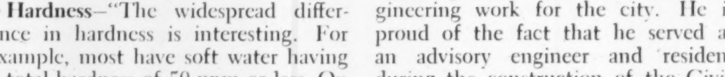
"The per-capita consumption in some cities was 60 gal per day, where the annual rainfall was 40 in. or more. For the most part, industry in those cities obtained its water needs from sources other than the municipal supply. The other extreme is 800 gal per capita daily in the arid regions of 15 in. or less annual rainfall. This high use of water is largely a result of irrigation and summer air conditioning."

• **More Water**—Cunningham says that during the last decade per capita use of water has increased a lot in the U.S. In Oklahoma City for instance, it has jumped from 62 gal in 1940 to 101 last year. The reasons, of course are industrial growth and development of air conditioning, automatic dishwashers, clothes washers, and other home appliances.

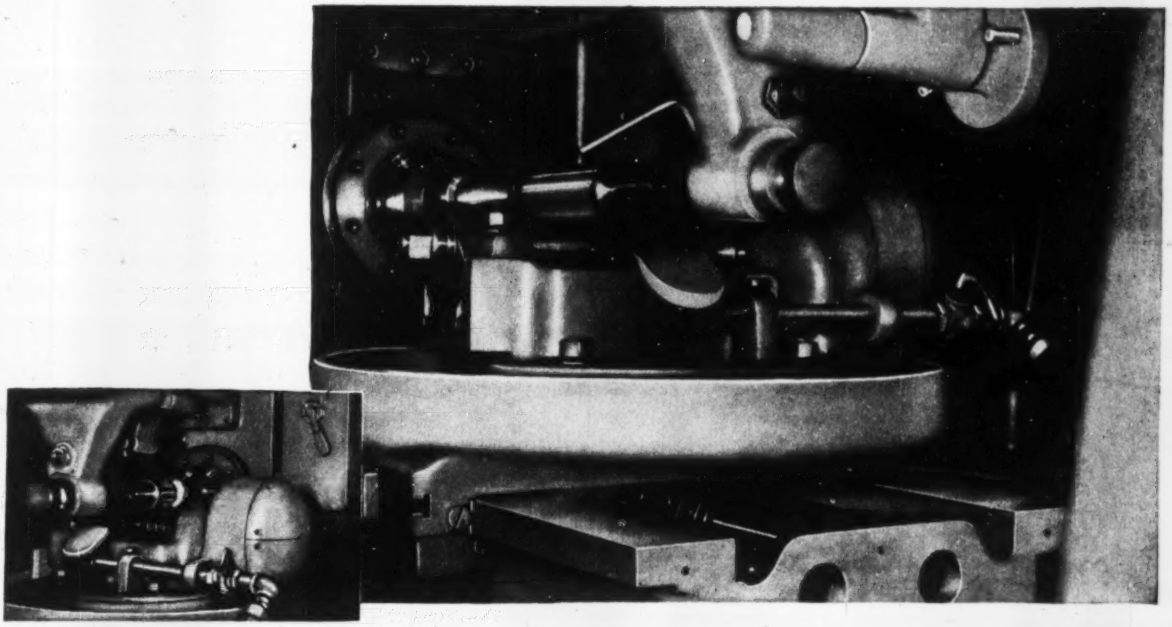
"In many areas," says the president-elect, "this increased use of water has caused re-evaluation: new planning, financing, and plans and specifications and extensive construction to expand our water supply, plant facilities, and distribution systems."

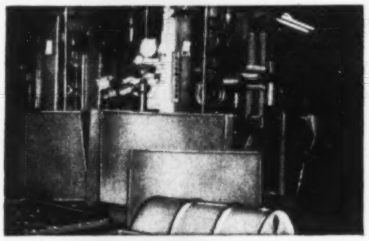
• **Construction, too**—Besides having a hand in the construction of over $26 million worth of water-system improvements during his years with the Oklahoma City Water Department, Cunningham has done other engineering work for the city. He is proud of the fact that he served as an advisory engineer and resident during the construction of the Civic Center. And he has been the city's engineer through 30 years of planning on the Oklahoma City Floodway Project, a $16-million undertaking which got started last February.

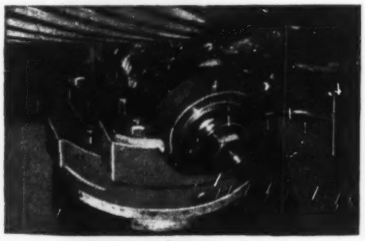
"My hobby is my work. . . . If I have a little spare time I drive around our lakes and other properties trying to think of ways to improve our service to the public."



Changing Guard At last week's annual convention of the New York State Society of Professional Engineers in New York City, Carl M. Gilt, (right) of Brooklyn, was elected president. He succeeds Edward J. Nunan, (left). In center is John D. Coleman, president of the National Society.







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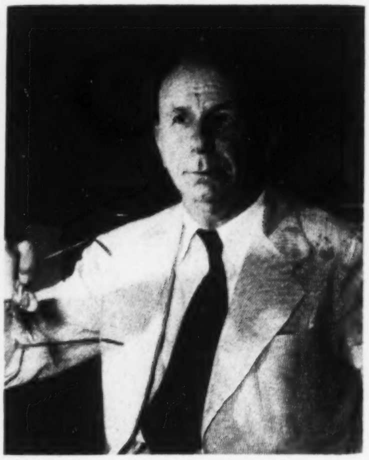

CARL A. BOCK is new executive director of Water Resources Authority.

Puerto Rico names Bock to head hydro authority

Carl A. Bock, chief engineer of Puerto Rico's Water Resources Authority since 1942 and consultant to the insular government on its hydroelectric and irrigation works since 1935, was named the authority's executive director April 15.

He succeeds the late Antonio Luchetti, who until his recent death had headed the commonwealth's public power development.

Bock spent six of his earlier years with the Tennessee Valley Authority, successively as secretary, director of engineering and consulting engineer. During most of that time he was responsible for recruiting and organizing TVA's engineering and construction forces.

Also he has been a consultant to many private companies, several states, the government of Haiti, the Interstate Commission on the Delaware River Basin and the National Resources Planning Board.

Early in his career as WRA's chief engineer, Bock worked to speed up U. S. Geological Survey's mapping of Puerto Rico; and the job was done. He supervised design and construction of the Caonillas hydroelectric project plus its extension, the new 80,000-kw San Juan steam power station, and is now directing construction of the Southwest Puerto Rico multipurpose water-use project.

Back in his earlier engineering experience, Carl Bock built a metergage rail line across the Bolivian Andes at an elevation of nearly 16,000 ft.

In Puerto Rico he has been active in training capable local engineers for positions of responsibility.

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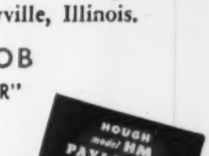

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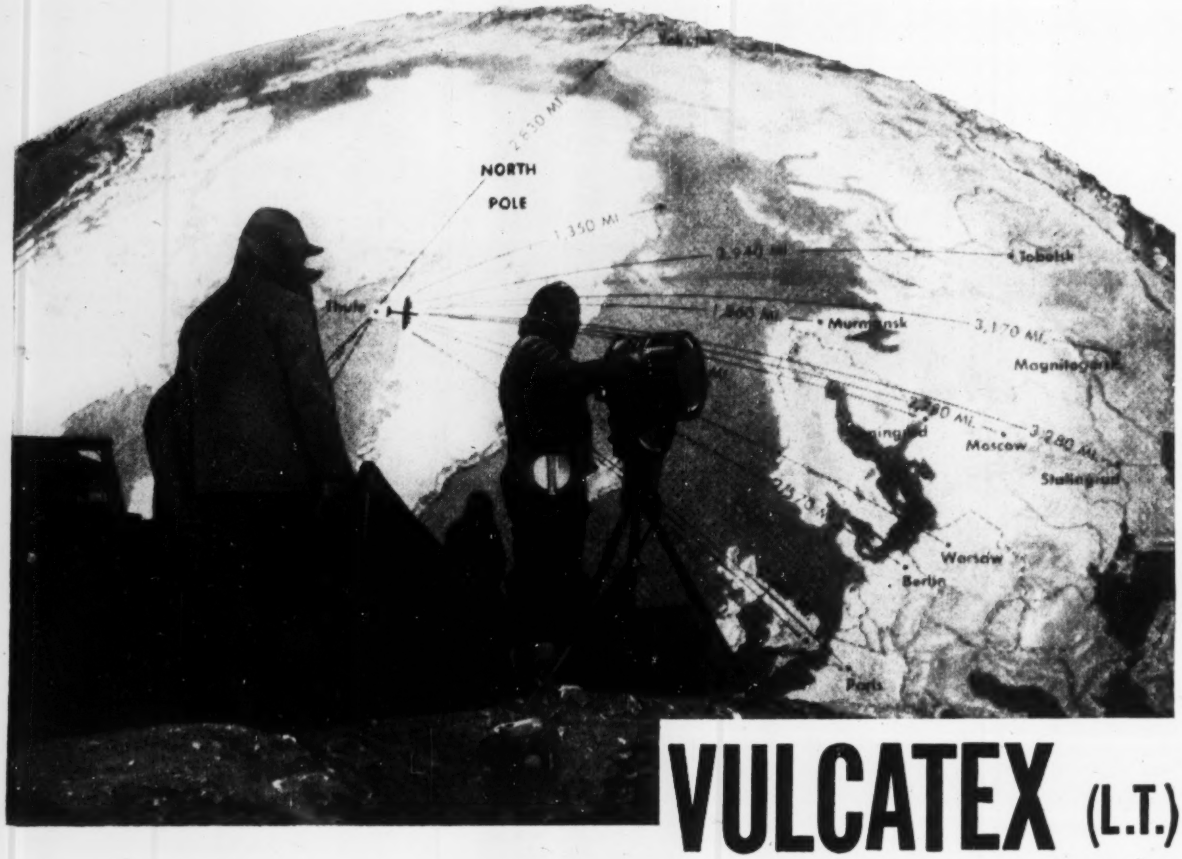
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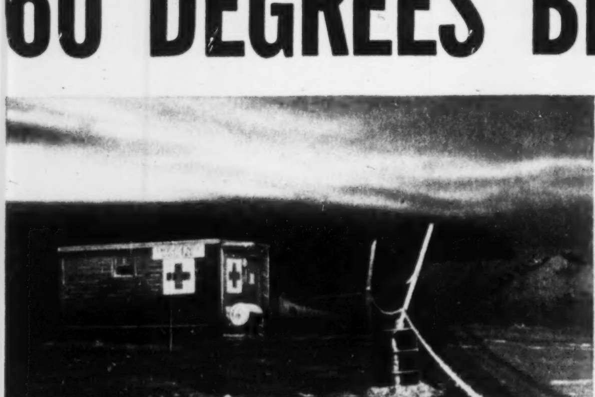

Through the announcement of the Defense department the public now knows about operation "Blue Jay" only 900 miles from the North Pole. This modern engineering miracle is a full scale year round bomber base. Temperatures of minus 60° F are common and winds drive rain or snow against the structures at 150 miles per hour. In such cold even rubber and steel become brittle.

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Operation "Blue Jay" in spite of the inhuman cold is now described

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Scientific census

U. S. will make another try at keeping track of experts

The government is taking another stab at the problem of counting noses and keeping track of the nation's scientific people. This time, there's a new approach. The effort will be cooperative with professional societies.

If you're a professional man in science or engineering you'll get another questionnaire to fill out this year.

Originally boomed as possessing immense possible benefits to industry in solving the technical manpower problem, the National Scientific Register never really got off the ground. Its present caretaker, the National Science Foundation, found that the job was being done by private groups and has decided to continue the project as a government-technical society effort.

A small office organized by NSF, called "Scientific-Manpower Section" is to help the societies in compiling their data. It will set rough guidelines for the work and encourage the societies to use uniform methods of collecting information. A financial incentive is proposed. The societies would get a grant every year, in return for which NSF would get duplicate cards, records, and summaries.

Because Congress has cut the NSF budget below the "Eisenhower Budget" and away below the "Truman Budget" NSF is off to a slow start.

NSF has a four-point program:

1. To provide standby machinery for identifying and locating on short notice persons with special skills.
2. To assemble statistical information on the supply, training and utiliaztion of scientific and engineering personnel.
3. To assemble comparable statistical information on the demand for such personnel.
4. To provide a center through which information about scientific and technical personnel resources may be funneled to those who seek it.

Solutions will have to be worked out for a number of problems.

First, there is the basic overall problem—to what extent should government subsidize the work? NSF believes that it is "buying a service" just as any government agency buys supplies or other services. But the societies will become dependent upon this aid, and NSF will be under a moral obligation to continue it somehow. The societies will want to get some assurance that it will be carried out on a continuous basis. But NSF cannot give this assurance because Congress may decide to kill the whole idea at the next appropriations time.

There is the problem of overlapping membership and organizations. Some engineers belong to several major societies, and in some fields there are two or even three large groups which lay claim to representing the field.

This means (1) that some persons may be counted more than once, and (2) NSF must choose one organization in each field to do the job.

Careers . . .

- **Appointed—Jerome K. Kuykendall** has been confirmed by the Senate as a member of the Federal Power Commission. He has been chairman of the Washington State Public Service Commission . . . **William A. Schulz,** veteran Republican worker and real estate man, will succeed **Harold M. Clay** as FHA director for lower New York State. Pay: $10,800 . . . **Wayne S. McDaniel** becomes chief engineer, eastern district, for H. K. Ferguson Co. . . . Pennsylvania Power & Light Co. has appointed **W. S. Brokenshire, Jr.** as assistant superintendent of construction forces . . . **Raymond L. Walsh** becomes chief engineer for Universal Atlas Cement Co. . . . **John G. Marr,** since 1946 city planning engineer for Oakland, Calif., named special assistant to Under Secretary Ralph Tudor of the Interior Dept. . . . Green Engineering Co., Sewickley, Pa., has promoted **Vernon G. Campbell** to vice-president in charge of engineering . . . **John E. Davidson** has become executive vice-president of Massman Construction Co., Kansas City, Mo.

- **Local government appointments—Robert A. Thompson** becomes manager of the San Antonio water board, succeeding **W. D. Masterson . . . Gordon L. Dwiggins** has been appointed chemist and superintendent of the Raleigh, N. C., municipal water plant.

- **Elected—C. George Dandrow** has been re-elected president of the New York Building Congress . . . **George S. Salter** has been elected president of the Chicago Engineers Society . . . **George Steven** is new president of the Erie County Chapter, New York State Society of Professional Engineers.

- **Honored—Herbert F. Moore,** professor emeritus of the University of Illinois and an expert on fatigue of metals, has received the Alumni Citation of the U. of New Hampshire.

SCAFFOLDING TRICKS
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Ezebilt

"Up Faster-
no bolts to master"
with GRAVITY-LOCK

No loose parts—ends of braces with locking triggers are zinc-plated, slip easily into locking sleeves on the panel legs. Finger-tip action releases the rust-proof locking trigger for easy disassembly.

HORIZONTAL BRACE
SIDE BRACE
PANEL SLEEVE
GRAVITY LOCKING TRIGGER

TYING-AROUND CORNERS
Swivel action and diagonal cross-bracing permits the use of braces to "tie-in" when making a 90° turn.

CIRCLING
Ezebilt's swivel action sleeve-lock makes it easy to scaffold round stacks and various cylindrical structures.

ALL MASON WORK
Simplified with Ezebilt SU type panels to provide open passageway thru the lifts. Four plank bearing levels available with use of side brackets.

it's no trick to solve your problem
with UNIVERSAL SCAFFOLDING

You can save time and material on difficult and unusual jobs, and simplify your scaffold work with Universal services:

CALL on Universal's layout and planning service to help you build *better* scaffolding *faster*—and at lowest possible cost.

ADAPT standard Ezebilt steel panels to do many other jobs—such as SHORING concrete forms.

COMBINE standard Ezebilt panels with Universal Endlok pipe-and-clamp to scaffold steeples and structures of irregular shape.

PROVIDE work platforms where they're needed—at safe, efficient operating levels.

Universal's NEW Ladscaf — ladder-type scaffold now available. Light-weight, low-cost, it is designed specifically for speeding-up Maintenance, Painting and Decorating work. Write for Bulletin E-4.

UNIVERSAL MANUFACTURING CORP.
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American Tubular Elevating Towers
World's Largest Producer of Steel-Panel Scaffolding.
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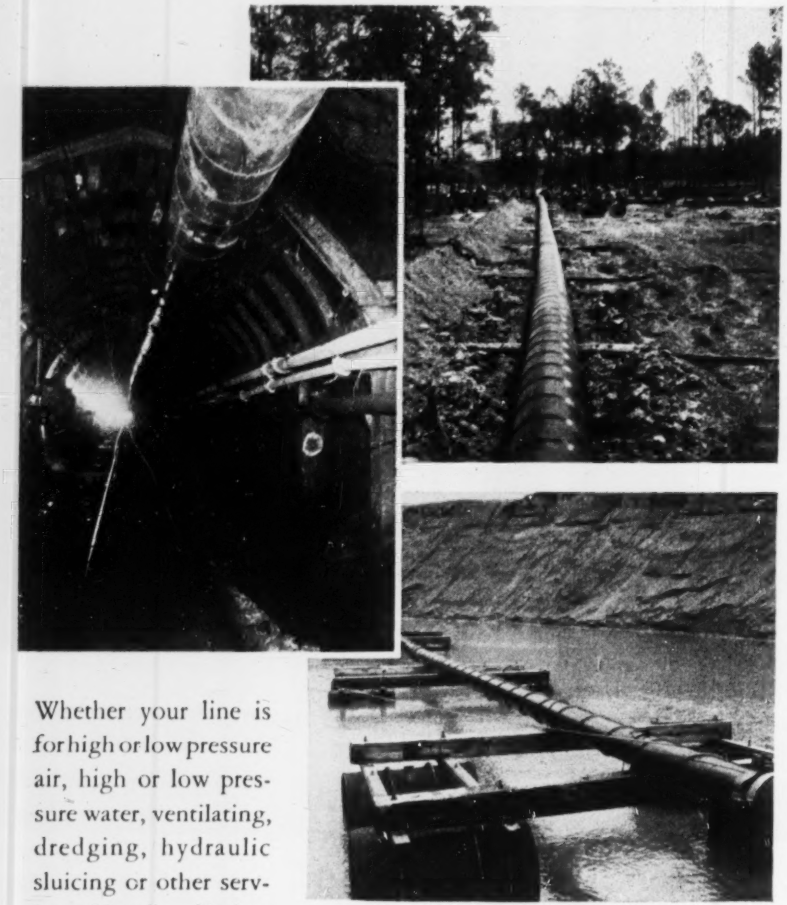
For Construction Pipe Lines...the Answer is NAYLOR



Whether your line is for high or low pressure air, high or low pressure water, ventilating, dredging, hydraulic sluicing or other service, Naylor lightweight pipe takes the guess-work out of your piping requirements.

Naylor Lockseam Spiralweld pipe is easy to handle and install. Naylor Wedge-Lock couplings speed connections, and with Naylor pipe, give you the all-around piping combination for your requirements.

Write for Bulletin No. 507 on line pipe and Bulletin No. 513 on Wedge-Lock couplings.

NAYLOR PIPE

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OBITUARIES

Herman Braloff, 57, president of the Cauldwell-Wingate Co., construction engineers, died at Rockville Center, N. Y., April 24. He was a graduate of the N. Y. University school of engineering. He built some important N. Y. City buildings, especially hospitals. He also did construction work on some of the city's subways. During World War II he helped build the Sampson, N. Y., Naval Training Station and Camp Shanks in New Jersey.

Frank Kukurin, 70, contractor of East McKeesport, Pa., died April 25. He had built many outstanding projects, including parts of the Lincoln Highway. His biggest job was the Memorial Bridge in the Knoxville section of Pittsburgh.

Walter Franklin, 55, president of the Franklin Bros. Co., excavators of Akron, Ohio, died there April 26. For 40 years he had been with the company founded by his father in 1896.

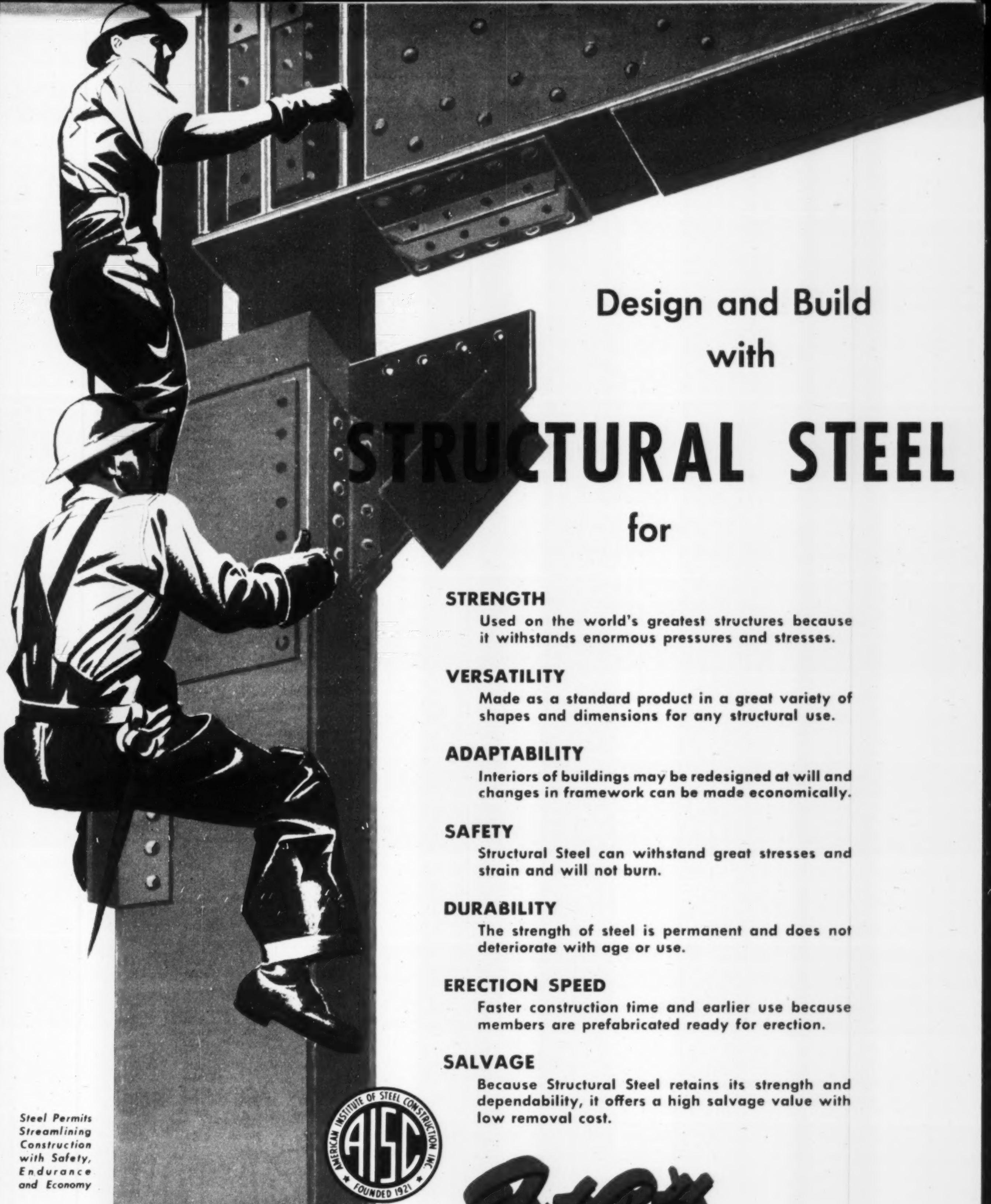
Rollo K. Blanchard, 67, for 45 years with the Neptune Meter Co. of New York and who retired in December as vice-president of the company, died at Clearwater, Fla., April 25. A graduate of Cornell, he was secretary-treasurer of the American Water Works Assn.

Perlite heat coefficients

"U" factors for perlite concretes have been established by the Armour Research Foundation at the Technology Center of the University of Illinois. The heat transmission coefficients are given below for various mixes of concrete in proportion to perlite.

Mix	1:4	1:5	1:6
Average compressive strength	415 psi	250 psi	165 psi
Oven dry density	35 pcf	29 pcf	26 pcf
* 1"	0.750	0.610	0.560
* 2"	0.376	0.305	0.280
* 3"	0.250	0.204	0.187
* 4"	0.188	0.153	0.140
* 5"	0.148	0.122	0.112
* 6"	0.125	0.102	0.094
* 8"	0.094	0.077	0.070

* Calculated U factors for perlite concrete of thickness indicated.



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STRENGTH

Used on the world's greatest structures because it withstands enormous pressures and stresses.

VERSATILITY

Made as a standard product in a great variety of shapes and dimensions for any structural use.

ADAPTABILITY

Interiors of buildings may be redesigned at will and changes in framework can be made economically.

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Structural Steel can withstand great stresses and strain and will not burn.

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The strength of steel is permanent and does not deteriorate with age or use.

ERECTION SPEED

Faster construction time and earlier use because members are prefabricated ready for erection.

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Because Structural Steel retains its strength and dependability, it offers a high salvage value with low removal cost.

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NEW YORK, N. Y. CLEVELAND, OHIO DETROIT, MICHIGAN

MATERIALS AND LABOR PRICES

Market quotations on construction materials and wage rates reported monthly by ENR correspondents
June Materials, and Labor Prices will appear in June 4, 1953 issue

CEMENT, AGGREGATE, READY-MIXED CONCRETE—F. O. B. CITY

	PORTLAND CEMENT* Per bbl. C/L lots cash. dis. not deducted			SAND AND GRAVEL Per ton. carload lots			CRUSHED STONE Per ton. carload lots		CRUSHED SLAG Per ton. carload lots, f.o.b. plant		CONCRETE BLOCK 8 x 8 x 16-in.: truckload del.: per block		CONCRETE Ready Mixed 1:2:4, over. 50 c.y., del.
	Paper	Bulk	Mortar	Gravel, 1½ in.	Gravel, ¾ in.	Sand	1½ in.	¾ in.	1½ in.	¾ in.	Sand grav.	Lt. wgt. agg.	
Atlanta	$3.87	$3.56	3.40	$2.075	$2.075	$1.83	$2.20	$2.20	$1.87	$1.99	$0.21	$0.21	$12.06
Baltimore	3.90	3.60	3.53	2.50‡a	2.50‡a	2.00‡a	2.70‡a	2.80‡a	2.60‡a	2.55‡a	.17	.17a	11.45
Birmingham	3.26	2.96	....	2.38n	2.38n	2.08n	2.50	2.50	1.25	1.35	.165	.165	10.45
Boston	4.16	3.84	3.96	2.50a	2.50a	2.50a	1.50a	1.60a	....	....	.215	.245a	12.00h
Chicago	3.48	3.17	...	3.25‡b	3.25‡b	3.65‡b	3.00‡b	3.00‡b	2.00‡	2.00‡	.22	.22b	11.70/11.94
Cincinnati	3.76	3.55	3.55	2.19‡c	2.24‡c	2.24‡c	2.54‡•	2.54‡•	....	....	.21	.225a	10.95
Cleveland	N. A. in C. L.		....	2.05ef	1.85f	1.65	4.14a	4.14a	3.15‡	3.15‡	....	.23	13.90d
Dallas	3.15	2.85	2.90	2.18	2.28	1.84	2.22	2.38	....	....	.125e	.215	9.30
Denver	4.04	3.74	4.04	1.85	2.00	1.20	....	....	....	....	.23	.255a	10.50
Detroit	3.47	3.20	3.25	4.25‡b	4.25‡b	3.75‡b	4.25‡	4.25‡	4.25‡	4.25‡	.19	.20a	10.70f
Kansas City	3.30i	3.03i	3.15i	1.85‡	1.85‡	1.50‡a	2.00‡a	2.00‡a	....	....	.20ag	.215e	12.00b
Los Angeles	4.32a	3.80a	4.92	2.11a	2.31a	2.06a	2.06a	2.16a	....	....	.135fm	.237m	11.71lh
Minneapolis	3.95d	3.64d	3.56	2.45‡ag	2.45‡ag	1.45‡ag	2.60‡ag	2.60‡ag	....	....	.21ih	....	11.90fi
Montreal	3.16ac	2.96ac	....	3.00	3.00	2.25	1.15ij	1.40ij	....	....	.20	.20e	9.65ck
New Orleans	3.35	3.02	3.18	2.32	2.32	1.82	....	....	1.05	1.25	.25	....	12.90
New York	4.01	3.70	3.53	2.65bk	2.65bk	1.75bk	2.50bl	2.50bl	....	....	....	....	12.55an
Philadelphia	3.58/3.97‡	3.27/3.64‡	3.58/3.63‡	2.75‡•p	2.75‡•p	2.15‡•p	2.10‡	2.15‡	1.75	1.65	.22/.25	....	12.00d•
Pittsburgh	3.47	3.19	3.47	2.25‡	2.25‡	2.20‡	2.60‡	2.60‡	2.15	2.15	.22d	.22d	13.00
St. Louis	3.47/3.68b	3.04/3.30b	3.25/3.42	3.10am	2.90am	2.50/2.90am	1.70j	1.70j	1.50	1.50	.215	.215ei	10.40
San Francisco	3.56	3.16	....	1.92	1.92	2.02	2.02	2.02	....	....	....	.27cl	11.25c
Seattle	4.05a	3.45a	4.80h	3.00‡bm	3.00‡bm	3.00‡bm	3.50‡bm	3.50‡bm	....	....	.24j	.3325j	11.90j

‡ Delivered. * Prices incl. dealers discount except as noted.
CEMENT: *a* Subj. to 10¢ dis. *b* Less 2% for cash. *c* CL price dealers discount not incl. *d* Dealers sell only LCL. *h* LCL.
SAND, GRAVEL, STONE & SLAG: *a* Truck lots. *b* Per cu. yd. *c* 5 tons or more. *e* ½". *f* Pea gravel. *g* Less 5% for cash. *h* Less than 5 tons. *i* Sales tax incl. *j* F.o.b. quarry. *k* Barge lots asd. *l* F.o.b. scow Hudson river. *m* Less 2% for cash. *n* F.o.b. cars. • 1-3 mi zone. *p* Add 10¢ for ea. add'l 3-mi zone

CONCRETE BLOCK: *a* Cinder. *b* Waylite. *c* Haydite. *d* Celocrete *e* 5½ x 8 x 12 in. *f* 8 x 4 x 16. *g* F.o.b. truck at job. *i* Less 2% for cash. *j* Less 1% for cash. *k* 8x8x18. *l* F.o.b. plant San Rafael. *m* F.o.b. yard
READY MIXED CONCRETE: *a* 5 cu. yds. or over del. Man. *b* 25 cu. yds. or more. *c* 10–100 cu. brackets. *d* 1–3 mi. zone. *e* 2,000 lb concr. *f* 2500 lb. comp. *h* Less 50¢ for cash. *i* 5% off for cash. *j* 2% off for cash. *k* Sales tax included. *l* 1:2½:4. *m* F.o.b. yard. *n* Plus escalator clause. • Add 15¢ for ea. add'l 3-mi zone

CASH DISCOUNTS CEMENT to Contractors: Truck delivery, 2% for cash on 10th of month; on carload deliveries, no trucking, same as dealer cash discount 10c. per bbl. for payment within 15 days of date of invoice. Subject discount 10c. per bbl. 20 days in Montreal.

CURRENT MAXIMUM PRICES AT CEMENT MILLS

Charge for bags not included. For paper bags add 30¢ per bbl., not refundable

	Bulk		Bulk		Bulk		Bulk		Bulk
Richard City, Tenn	$2.75†	Buffington, Ind	$2.70†	Steelton, Minn	$2.80†	Muskegon, Mich	$2.85†	Toledo, O	$2.75†
Clinchfield, Ga	2.75†	Independence, Kan	2.65†	Leeds, Ala	2.60†	Saginaw, Mich	2.75†	Milwaukee, Wis	2.90†
Kingsport, Tenn	2.75†	Hannibal, Mo	2.70†	Duluth Minn	2.80†	Wyandotte, Mich	2.75†	Green Bay, Wis	2.90†
West Des Moines, Iowa	2.80†	Northampton, Pa	2.75†	Hudson, N. Y	2.75†	Buffalo, N. Y	2.75†	Ironton, O	2.75†
Nazareth, Pa	2.75†	Universal, Pa	2.80†	Alpena, Mich	2.65†	Oswego, N. Y	2.90†	Montreal City	2.66
Bath, Pa	2.75†	Waco, Tex. (+ 10¢ tax)	2.65†	Detroit, Mich	2.75†	Cleveland, O	2.75†	W. Winfield, Pa	2.80†

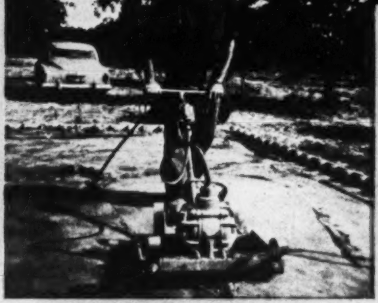
† *Prices to hold for second quarter of 1953.*

PAVING BRICK, BLOCK, ASPHALT, ROAD OILS—F. O. B. CITY

	PAVING BRICK AND BLOCK			PAVING ASPHALT Per ton, less than 80 penetration		ASPHALT BINDERS—FLUXES Per gal., 80–300 penetration		CUTBACK ASPHALT Per ton		ROAD OIL Per gal.	ASPHALT EMULSION (Quick-breaking) Per gal.	
	Granite Per M lots of 50,000 4x4x8 in.	Brick per M 3x4x8½ in. carload lots	Wood per sq. yd. 3½ in. 16-lb. treat	Tank car	Drums	Tank car	Drums	Tank car	Drums	Tank car	Tank car	Drums
Atlanta	$82.00	$41.00	$2.25	$26.00	$33.25	$0.215	$0.455	$0.095w	$0.185w	$0.105	$0.115	$0.225
Baltimore	150.00‡	58.00‡	.....	22.00i	.....	.0809i	0.15i	.09iw	.17iw	.09i	.09i	0.12i
Birmingham	......	45.50i	.....	......	.....	......	.....	......	......	......	.. ..	......
Boston	......	......	.....	24.50a	35.50a	22.00av	35.50av	......	......	.09a	..5a	.22a
Chicago	155.00‡	90.00‡b	4.40/4.60‡f	20.25b	30.25b	19.25bv	29.25bv	.0875bw	.16bw	.075b	.10	.....
Cincinnati	.....	.....	.....	.....	.....	.....	....	.....	.....	.....	.....	.....
Cleveland	200.00	65.00d	5.03g	23.00A	.....	23.00A	....	.1025Aw	.....	....	.11A	.18A
Dallas	e	40.00	e	24.05	43.09	.1016	.2103	27.09	47.87	.0980	.1041	.2128
Denver	....	48.00	.....	.....	....	.....	.....	.....	.....	.....	.....	.....
Detroit	....	92.00	....	27.21	....	27.21v	.....	.1202w	.....	.0925	.....	.2811r
Kansas City	e	e	e	15.00cl	...	.055	.....	.065cw	.....	.055c	0.435	.....
Los Angeles	e	....	e	16.00dmx	...	16.00dvx	.. ..	18.00dx	.....	17.00dv	.0825j	.1725j
Minneapolis	....	....	2.97h	25.07	....	24.07	.....	.0744w	.....	.0644	.0785	.....
Montreal	....	e	e	27.10n	36.65n	.135n	.193n	16.30nu	18.80nu	.132n	.184ns	.225ns
New Orleans	....	....	.....	17.50e	....o	17.50ev	.....o	.085ew	.....o	.0825B	.085	. ...
New York	.....	.....	3.12f	26.26q	47.59q	25.26vt	46.58vt	.1071w	.2021w	.1071	.1072	.1993
Philadelphia	175.00	110.00	4.06	22.00	....	.....	.....	.095u	.....	.....	.....	.....
Pittsburgh	165.00	48.00	4.60	27.00	37.00	.10	.21	27.00	39.00	.095	.09	.205
St. Louis	.....	.....	.....	18.61f	....	.1758	.....	.0865/.089w	.....	0.155	.10	.....
San Francisco	.....	55.00e	.....	17.50g	33.00gp	17.50gkv	23.00gkv	20.00g	37.50g	18.75v	.085y	.....
Seattle	.....	.....	.....	17.50h	38.00h	17.25hv	.....	20.00h	...	19.75hv	.095h	.105hr

‡ Delivered.
PAVING BRICK & BLOCK: *a* CL. *b* 3½ x 4 x 8½. *c* 2½ x 8½ x 4. *d* LCL, truck deliveries. *e* Not used. *f* 2" interior 6# treat. *g* 3". *h* 8# treat. *i* 3 x 3⅝ x 8½.
ASPHALTS: *a* Price at plant, Everett, Mass. *b* F.o.b. refinery, Lockport, Ill. *c* F.o.b. Sugar Creek, Mo. *d* F.o.b. refinery, El Segunda. *e* F.o.b. Baton Rouge. *f* F.o.b. Wood River or Roxana, Ill. *g* F.o.b. Richmond, Calif. *h* F.o.b. Martinez. *i* F.o.b. refinery, Baltimore. *j* F.o.b. refinery, Inglewood, Calif. *k* 50–110 penetr. *l* Less than 100 penetr. *m* 40–80 penetr. *n* Tax incl. *o* Drums not avail. *p* Shipped in steel bbl. *q* 40–85 penetr. *r* In customer's drums. *s* Shipped in drums, per drum. *t* 85–300 penetr. *u* Per 100 gal. *v* Per ton. *w* Per gal. *x* Also tank trucks *y* F.o.b. Oakland. *A* F.o.b. refinery, Cleveland. *B* F.o.b. Norco, La.

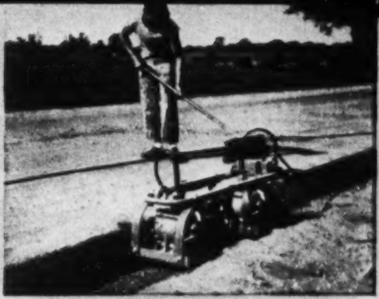
10 LEADS TO BETTER *FASTER RESULTS* *and BIGGER* PROFITS!



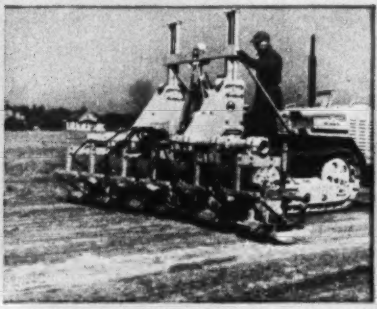
SOIL COMPACTION. The powerful, new, self-propelling JACKSON COMPACTOR, with 12" to 24" interchangeable bases, achieves specified density of granular soils in 8" to 10" depths at 2400 sq. ft. per hr. Perfect for bridge and pipeline fills, concrete floor sub-bases, etc.

BLACKTOP WIDENING & PATCHING.

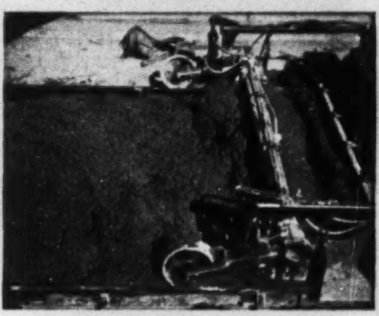
The same machine, operated from power plant on auto-trailer with pickup for Compactor, is most efficient means of blacktop pavement widening and patchng; paving walks, drives, etc. Compacts 2400 sq. ft. per hr. close to maximum density.



WIDENING STRIP SUB-BASES. Self-propelling tandem COMPACTOR (12" to 24" wide) will provide specified density in one pass. Controlled by spreader operator. No extra labor required.

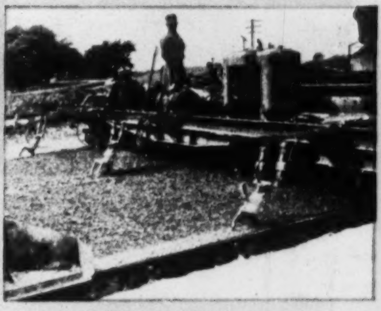


MACADAM DENSIFICATION. Multiple COMPACTOR units, up to 12 ft. wide and tailored to fit job, provide a faster, better means of macadam densification and consolidating sand-gravel-bituminous and other mixed-in-place combinations.

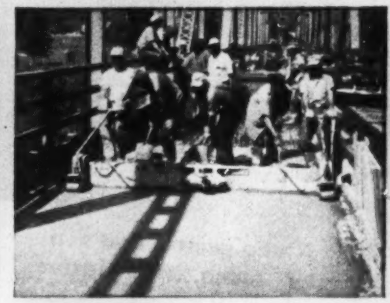


HIGHWAY & AIRPORT PAVING.

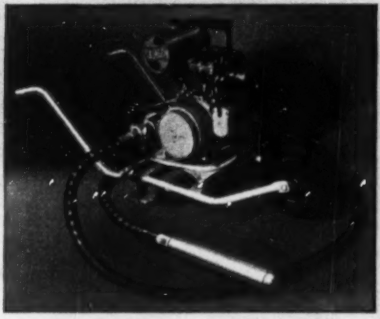
New, super-powered JACKSON PAVING TUBE gives full width internal vibration through full depth of the slab. Saves time, cement; provides greater density and compressive strength. Attaches to standard finisher or spreader.

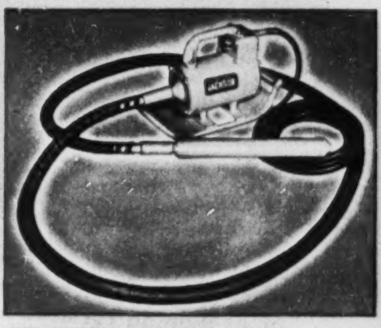


SIDE FORM VIBRATION. Works equally well mounted ahead of finisher screed or in rear of spreader. Controlled by finisher operator, it saves better part of two men's labor. Will not snag forms or reinforcements, or penetrate into sub-grade.



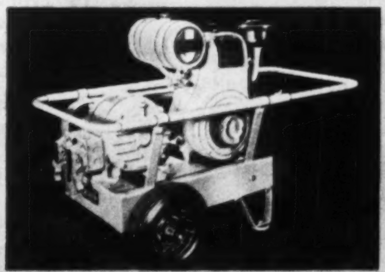
MUNICIPAL PAVING. This vibratory Screed strikes off to all crowns, undercuts at curb or sideform, works right up to and around obstructions. Only screed that can be rolled back for second passes on 4 rollers. Most productive and convenient screed made.





GENERAL CONSTRUCTION

(Left): 6 H.P. engine-driven, flexible shaft vibrator. Excellent for both thin and thick sections. (Right): 2½ H.P. electric vibrator (for light-socket operation). Handy as a pocket in a shirt, powerful enough to handle all general construction concrete vibration with shafts up to 28'.



DUAL CURRENT PORTABLE POWER

for operating all JACKSON machines and lights. 2.5 to 7.5 KVA, providing both single and 3-phase 60 Cy. 120 V, AC (120/240 V in larger models). Permanent magnet generators require no adjustment or maintenance.

MASS CONSTRUCTION. The JACKSON VS-4 Vibrator has no rival in economically and efficiently placing mass concrete in dams and similar construction.

FOR SALE OR RENT
AT YOUR JACKSON DISTRIBUTOR

JACKSON
VIBRATORS Inc.

LUDINGTON, MICHIGAN

here's muscle to move mountains IN 6 YARD BITES!

LIMA TYPE 2400—The largest member of the Lima family is engineered and constructed for heavy duty service with higher dump, greater reach, and faster digging cycle.

EASY INSTANT CONTROL — Smooth, "Precision" air control of travel and operating motions lessens operator fatigue. Anti-friction bearings, reduce power robbing friction and step up efficiency.

BIG YARDAGE PRODUCER— Maximum power and fast digging cycles originate from a husky 12 cylinder Diesel engine of approved make. Equipped with torque converter power take-off.

LOW OPERATING COSTS — Truck and rotating bases are integrally cast for extra-rigidity and long life. Adjustments rarely needed on full mechanical clutches. Easy maintenance.

Offices in Principal Cities of the World

LIMA

SHOVELS • CRANES
DRAGLINES • PULLSHOVELS

BALDWIN BLH LIMA-HAMILTON
Construction Equipment Division

BALDWIN-LIMA-HAMILTON CORPORATION
Construction Equipment Division
LIMA, OHIO, U.S.A.

IRON AND STEEL PRODUCTS—PER 100 LBS. BASE MILL PRICES

	STRUCT SHAPES—	PLATE CARBON STEEL	REINF BARS billet	RIVETS ¾-in. structural	SHEET PILING Base	STEEL RAILS Per Net Ton Standard	Light	Re-rolled	TRACK SUPPLIES Angle Bars	Std Spikes	Tie Plates	Track Bolts
Birmingham Area	$3.85	$3.90	$3.95	$7.85	....	$75.50	$85.00	Not available	$4.925	$6.65	$4.775	....
Chicago Area	3.85	3.90	3.95	7.85	$4.675	75.50	85.00		4.925	6.65	4.775	....
Pittsburgh Area	3.85	3.90	3.95	7.85	4.675	75.50	85.00		4.925	6.65	4.775	$9.85
Buffalo Area	3.85	3.90	3.95	7.75	4.675	75.50	85.00	....	4.925	6.65	4.775	9.85
Cleveland	....	....	3.95	7.85	4.675	......	......	....	....	....	....	9.85
Youngstown Area	....	....	3.95	....	....	......	......	....	....	6.65	....	....
Geneva	3.85	3.90	....	....	....	......	......	....	....	....	....	....
Los Angeles	....	....	....	....	....	......	......	....	....	6.65	....	....
Pueblo	4.30	4.70	4.75	....	....	75.50	95.00	....	4.925	6.65	4.775	9.85

IRON AND STEEL PRODUCTS—F. O. B. WAREHOUSE, PER 100 LBS., BASE PRICE

	STRUCTURAL SHAPES Per 100 lb. base price	REINFORCING BARS Per 100 lb., base price u; 5 tons to carload lot b New billet	Rail steel	Add switch	$/cwt for Del.	EXPANDED METAL LATHk Per 100 sq. yd., carload lots Std. diamond mesh. 3.4 lb.	Std. ribbed 3.4 lb.	WELDED FABRIC REINFORCINGd Per 100 sq. ft., carload lots 4x16 in., No. 5 & 10 wires	4x12 in., No. 8 & 12 wires	6x6 in., No 6 & 6 wires
Atlanta	$7.31	$7.11	$7.11	$.025	$...	$38.00‡	$42.00‡	A.P.M.* Joliet, Illinois, Donora, Penn., $2.81 F.o.b. Mill: Monessen, Penn., $2.81	A.P.M.* Joliet, Illinois, Donora, Penn., $1.96 F.o.b. Mill: Monessen, Penn., $1.96	A.P.M.* Joliet, Illinois, Donora, Penn., $2.95 F.o.b. Mill: Monessen, Penn., $2.95
Baltimore	6.47	6.44l	....	....	....	42.00	45.00			
Birmingham	5.95	5.80	5.80	.05	.15	47.00p	52.00p			
Boston	6.56a	6.92	6.92	....	— —	39.50	43.50			
Chicago	5.95	5.33ff	5.33ff	.0625	....	46.00C	51.00C			
Cincinnati	6.42ak	6.63r	....	....	.15	38.00szee	42.00szee			
Cleveland	6.28	5.31v	....	....	....	36.50‡	40.50‡			
Dallas	9.05	7.25	7.25	....	....	49.00	52.00			
Denver	7.55	7.30c	....	— —	— —	50.00s	62.00qs			
Detroit	6.42	6.62n	....	....	.20	53.00	58.00			
Kansas City	6.70nn	6.97	....	....	— —	36.00	40.00			
Los Angeles	6.70fhh	6.57g	....	....	....	48.00	54.00			
Minneapolis	6.51hh	7.60ll	7.60ll	....	....	34.50	38.50			
Montreal	7.00iB/7.00A	4.90i	4.90g	....	....	58.00h	64.00h			
New Orleans	....	5.98ok	....	.05	....	66.00	60.00			
New York	6.77	6.71	6.71	....	.30	38.50st	44.00st			
Philadelphia	6.42	6.67	....	....	....	38.00‡	42.00‡			
Pittsburgh	5.80/6.00	5.80/6.00	....	— —	.10	37.60	39.60			
St. Louis	6.35a	5.95c	5.95c	....	....	50.00aa	55.00aa			
San Francisco	7.25	6.65l	....	....	....	40.50	43.50			
Seattle	4.50e	5.80el	....	....	....	57.00sm	47.00smmx			

* At Producing Mill.

‡ Delivered. b Less than 700# add 50¢; 700-1499# add 65¢; 1500 to 7999# add 50¢. c 20 tons or over base. d Mill price plus freight. e F.o.b. plant. f Includes delivered in free delivery zone. g 10,000 to 39,999 lbs. h List price. Dominion tax exempt. Provincial and Municipal tax extra. i Plus Dominion, Provincial and Municipal sales tax. j Price per ton. k F.o.b. city. l Intermediate and hard grade, new billet. m Per sq. yd. n 5–10 tons. o 5 to 20 tons base. p Del. of 500 sq. yd. or more. q Std. ribbed. 4 lb. per sq. yd. r 5 tons or over. s LCL. t Asphalt coated. u Note: Revised size extra — 1 in., 1⅛ in., 1¼ in., 10¢, ⅞ in., ¾ in., 15¢, ⅝ in., 25¢, ½ in., 50¢, ⅜ in., 80¢. ¼ in., $1.90. 1 producer raised extras eff 5/1, 1 in to 1¼ in., 30¢, ⅞ in., 45¢, ⅝ in. 55¢, ½ in. 80¢, ⅜ in. 1.10, ¼ in. 2.20 v 20 tons. Straight. w Copper bearing. x 2.5 lb. per sq. yd. y $0.0093 transportation tax included. z Copper alloy. aa Delivered truck to job. Contractor to do unloading. dd F.o.b. dock. ee F.o.b. cars. ff Carload lots. gg Including sales. hh 10,000–19,999 lbs. ll 5 to 8 tons, f.o.b. city. mm 2% off for cash. nn 1–5 tons. # 10 tons to CL. a 2000–9999 lbs. A. Amer. struct'l shapes. B. Canadian shapes. C. Deliv to contractor.

PLUMBING, HEATING, WATER, SEWER AND DRAIN PIPE

	C. I. PIPE Per net ton f.o.b. 6 in. to 24 in.a	ASBESTOS CEMENT PIPE per lin. ft., f.ob. city 6" Pr Cl. 150	12" Sew Cl. I	VITRIFIED SEWER PIPE Per foot, Delivered ASTM C13-44T std. 8 in. s.s.	std. 12 in. s.s.	24 in. ds.	36 in. ds.	CLAY DRAIN TILE ASTM C4-24 Per 1,000 ft., carload lots, f.o.b. 6 in.	8 in.	CONCRETE SEWER PIPE Per ft., delivered: ASTMC 14-41 12 in.	24 in.
Atlanta	$101.00	$1.44	$2.42	$.545	$1.27	$4.82	$12.925	$248.00	$356.00	$1.23	$2.62
Baltimore	121.50	1.46	2.42	.518	.999	4.095A	11.1725A	178.20	274.80	.95	2.60
Birmingham	101.00	1.44	2.42	.42	.75	2.99	....	250.00‡	375.00‡	1.25m	2.75m
Boston	113.00	1.46	2.20	.553uvx	1.0665uvy	4.41uvy	11.90uvy	187.80v	289.20v	1.62mg	3.95mg
Chicago	107.00	1.44	2.20	.70m	1.35m	5.62m	13.50m	150.00‡	270.00‡	.80	2.80
Cincinnati	106.00	1.46	2.29	.581y	1.120y	4.41y	11.375y	164.40	254.10	.75m	2.80m
Cleveland	108.00	1.46	2.29	.49x	.999x	3.96x	10.66x	158.00m	245.65m	.75m	2.95m
Dallas	112.00	1.46	2.54	.436	.822	3.234b	9.17b	......	......	.49	1.60
Denver	115.00	1.55	2.54	.43dd	.74dd	3.18dd	....	......	......	.74m	2.50m
Detroit	108.00	1.46	2.29	.72	1.39	5.58	14.91	240.00m	360.00m	.80	3.20
Kansas City	113.00	1.46	2.29	.53	.945	3.87	10.60	250.00	80.00	.70g	3.00g
Los Angeles	133.00	1.53	2.29	.51f	1.07f	5.24f	13.06f	228.20f	348.90f	.95	2.75ff
Minneapolis*	112.00	1.50	2.42	.72mo	1.32mo	5.32mo	....	......	......	1.38h	3.93h
Montreal	110.00	....	....	.85z	1.50z	5.25z	....	......	......	1.17j	3.11j
New Orleans	101.50	1.44	2.42	.513	.93	5.15	....	265.00bb	455.00bb	.65	2.29
New York	111.35	1.46	2.20	.62	1.20	4.81	12.60	......	......	1.15	2.75
Philadelphia	110.00	1.44	2.20	.65	1.25	4.95A	12.65A	300.00‡	350.00‡	1.55h	3.75h
Pittsburgh	110.00	1.46	2.20	.428m	.794m	2.97m	7.92m	149.00	232.00	1.05h	2.50h
St. Louis	112.00	1.46	2.29	.51	.93	3.65	9.21	160.00l	360.00l	1.20il	2.70hl
San Francisco	127.00	1.55	2.29	.61d	1.20d	5.03d	12.57d	240.00l	400.00l	.73	3.02
Seattle	124.00	1.55	2.42	.51b	.91b	....	..	150.00c	......	.86ee	2.56ee

‡ Delivered. a Class B & heavier. Based on existing freight rates; subject to rate change. Gas pipe and class A, $5 per ton additional. 4 in., $7 per ton additional. 30 in. and larger, usually. $1 per ton less. b Extra strength ASTM C 200–44T. c 4-in., $90. d SS361-A. e 30-in. f F.o.b. factory. g Culvert pipe. Reinforced, ASTM C76–41. h Reinforced, ASTM C75–41. i Reinforced, ASTM C76–37. j Centrispun. No. standard specifications in Can. l F.o.b. plant. m Truck delivery. o Listed price is based on LCL (no minimum). p Less than 5 tons, per price per ft. t Within switching limits. u'ASTM C13–40. v C.L.f.o.b. origin, freight allowed. x 2 ft. lengths. y 3 ft. lengths. z CESA A 60–1941 specifications used. *aa Extra strength ASTM C-200–50.* A standard strength. * 6", $1.67 per ft.; carlots, F.o.b. track Class 150. bb Freight allowed to destination in city. cc Truck loads; f.o.b. plant, Newton. dd LCL delivered, f.o.b. truck. ee 1% off for cash. ff 21.

—*WROUGHT STEEL PIPE—

(Full standard weight)

Mill	2½ & 3 in. Butt Weld† Black %	Galv. %	3½ to 6 in. Lap Weld† Black %	Galv. %
Lorain, Ohio	40.0	26.25	....	....
Aliquippa, Pa.	40.0	22.25	33.0a	15.25a
Sparrows Pt., Md.	38.0	21.25	28.0a	10.75a
Benwood, W. Va.	40.0	21.75	34.75c	16.0c
Youngstown, O.	40.0	23.25	....	....
Indiana Harbor, Ind.	39.0	22.25	32.0ab	14.75a
Sharon, Pa.	40.0	21.25	....	....
Wheatland, Pa.	40.0	20.75	33.0a	13.75a
Etna, Pa.	40.0b	19.25b	34.75c	13.5c
Fontana, Calif.	27.0b	13.25b	19.0ab	4.75ab

† Threaded and coupled. a 3½ to 4 in. b Continuous weld. c 5 and 6 in.

* WROUGHT STEEL PIPE: Discounts from standard list consumers carload prices. Base price approx. $200 per net ton. List prices per ft.: *Butt Weld:* ⅛ in., 5½¢; ¼ in., 6¢; ⅜ in., 6¢; ½ in., 8½¢; ¾ in., 11½¢; 1 in., 17¢; 1¼ in., 23¢; 1½ in., 27½¢; 2 in., 37¢; 2½ in. 58½¢; 3 in., 76½¢. *Lap Weld:* 3½ in., 92¢; 4 in., $1.09, 5 in., $1.48; 6 in., $1.92. Freight rates to destination to be added to price plus 3 percent tax on transportation.

WROUGHT IRON PIPE: List prices per ft. same as wrought steelpipe Discount for Pittsburgh base. *Butt Weld* — 1 in. black, + 25.75, galv. + 57.0; 1¼ in. black, + 25.75, galv. + 56.5, 1½ in. black, + 19.25 galv. + 52.75; *Lap Weld* — 2½ in. to 3½ in. black + 26.25. galv. + 55.5; 4½ in. to 8 in. black + 23.0, galv. + 50.75. Freight rates to destination to be added to name delivered price.

LUMBER, TIMBER, PLYWOOD—PER M FT., B.M., CARLOAD LOTS F.O.B.

SHORT LEAF YELLOW PINE AND DOUGLAS FIR

All S. L. Y. P. is No. 2 common or better and for No. 1 N. C. Box. (Prices in Bold Face)
All Fir boards, dimensions, planks No. 2, Fir small timbers and timbers are No. 1 Lengths up to 20 ft. (*Prices in italics*)

LONG LEAF Y. P. Merchantable grade up to 20 ft.

PLYWOOD Rail freight increment (See note for base price)

	SHORT LEAF YELLOW PINE AND DOUGLAS FIR									LONG LEAF Y. P.		PLYWOOD	
	1x6 s4s	1x8 s4s	2x4 s4s	2x6 s4s	2x8 s4s	2x10 s4s	3x12 Rgh	6x12 Rgh	12x12 Rgh	2x12 Rgh	12x12 Rgh	5/8"	3/4"
Atlanta †	**$79.00**	**$82.50**	**$73.50**	**$76.00**	**$79.50**	**$83.00**	**$81.00**	......	......	......	......	$22.32	$27.24
Baltimore *	**91.50**	**92.50**	**75.00**	**75.00**	**75.00**	**80.00**	**111.50**			**$160.00**	**$155.00**	25.92*	31.60*
	103.00g	*103.00g*	*98.00g*	*98.00g*	*98.00g*	*98.00g*	*102.50*	*$118.00*	*$118.00*	......	......	.....	.....
Birmingham †	**80.50**	**82.50**	**70.50**	**80.50**	**83.50**	**85.50**	**95.50**		......	**115.50**	**155.50**	21.78	26.58
	83.50	*83.50*	*77.50*	*79.50*	*78.50*	*78.50*	*83.50*	*85.50*	*85.50*	......	......		
Boston	**101/106a**	**104/110a**	**95/101***	**96/106***	**98/108a**	**100/112a**	......	......	......	......	......	25.92*	31.60*
²	*98.00**	*98.00*	*98/102*	*98/102*	*98/102*	*98/102*	*112.00*	*110/112*	*115.00*	......	......	.....	.....
Chicago **	**100.00**	**105.00**	**92.00**	**100.00**	**101/102**	**105/106**	**105.00**	......	......	**134.00**	**134.00**	22.45*	27.37*
	100.00	*101/102*	*103/104*	*107.00*	*108/109*	*108/109*	*110.00*	*110.00*	*110.00*	......	......		
Cincinnati *	**99.00**	**105.00**	**88.00**	**98.00**	**105.00**	**110.00**	**122.50**	......	......	**145.00**	**145.00**	25.00*	30.48*
	115.00	*115.00*	*117.00*	*115.50*	*117.00*	*115.00*	*145.00*	*145.00*	*145.00*	......	......		
Cleveland **	**94.00**	**96.00**	**87.00**	**93.00**	**99.00**	**102.00**	......	......	......	......	......	25.37*	30.93*
	......		*104.00*	*105.00*	*105.00*	*105.00*	*118.00*	*118.00*	*118.00*	......	......	.....	.....
Dallas k†	**78.00**	**80.00**	**69.00**	**58.00**	**59.00**	**59.00**	......	......	......	**97.00**	**98.00**	18.72	22.80
Denver *	Not in stock		*128.00*	*128.00*	*126.00*	*130.00*	*135.00*	*156.00*	*156.00*	......	......	13.92	16.98
Detroit ‡	**110.00**	**115.00**	**101.00**	**110.00**	**114.00**	**118.00**	......	......	......	......	......	25.00*	30.48*
	101.50	*102.50*	*105.50*	*106.25*	*105.25*	*104.00*	*118.75*	*122.50*	*122.50*	......	......	.....	.....
Kansas City *	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	**122.00**	......	......	......	......	......	16.56	20.16
	122.00	*122.00*	*122.00*	*122.00*	*122.00*	*122.00*	*147.50*	*157.50*	*157.50*	......	......	.....	.....
Los Angeles ¹	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*96.00*	*114.00*	*124.00*	*114.00*	......	......	16.61*ab	20.25*ab
Minneapolis #	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*135.00*	*155.00*	*155.00*	*155.00*	......	......	19.89*	24.25*
Montreal	ab85.00	90.00	85.00	90.00	100.00	100.00	......	......	......	......	......	.....	.....
	175.00	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	*175.00*	......	......	......		
New Orleans †	**100.00**	**100.00**	**92.50**	**85.00**	**90.00**	**94.00**	**118.00**	......	......	**150.00**	**148.00**	18.72	22.80
†	*99.50*	*103.50*	*112.00*	*112.00*	*110.00*	*109.75*	*110.00*	*120.00*	*110.00*	......	......	.....	.....
New York ³	**107/112**	**110/115**	**110/115**	**115/120**	**120/125**	**125/130**	**150/160**	......	......	**210/240**	**210/240**	25.92*	31.60*
	......	......	*Range from $115.00 to $120.00*				*130/145*	*144/155*	*144/155*	......	......	.....	.....
New York **	**92.00**	**94.00**	**80.00**	**90.00**	**92.00**	**96.00**	**125.00**	......	......	**190.00**	**190.00**	.....	.....
	96.00	*96.00*	*100.00*	*100.00*	*100.00*	*100.00*	*106.00*	*115.00*	*115.00*	......	......	.....	.....
Philadelphia ‡			**Range from $110.00 to $127.00**				**110/127**	......	......	**210/220**	**210/220**	25.92*	31.60*
			Range from $120.00 to $150.00				*130/140*	*150.00*	*150.00*	......	......	.....	.....
Pittsburgh †			**Range from $90.00 to $95.00**			**110/120**	**110/120**	......	......	**110/120**	**115/125**	25.92*	31.60*
			Range from $110.00 to $120.00			*130/140*	*130/140*	*140/155*	*140/155*	......	......	.....	.....
St. Louis	**#c109.00e**	**111.00e**	**100.00d**	**109.00d**	**112.00e**	**118.00e**	......	......	......	......	......	18.72	22.80
	......	......	*112.00i*	*118.00e*	*118.00e*	*118.00e*	*165.00e*	*165.00*	*185.00*	......	......	.....	.....
San Francisco A†	*63.00*	*64.00*	*67.00*	*66.00*	*65.00*	*65.00*	*67.00*	*66.00*	*66.00*	......	......	12.22*a	14.91*a
Seattle †	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*80.00g*	*85.00g*	*85.00g*	*85.00g*	......	......	.....	.....

† F.o.b. mill. * F.o.b. city, CL, out of yard. ** F.o.b. city, CL, direct mill shipment. ‡ Deliv. to contr. CL. 1. Retail, LCL, at yard. # Retail, LCL, deliv. 2. Deliv. truck lots. 3. asd.

LUMBER: **Bold Face type, Southern Pine.** *Italics, Douglas Fir.* a Spruce b Tax exempt. c 5M lots. d 8–12 ft. lengths. e 8–16 ft. lengths. f 18 ft. or under. g No. 1 common. i 8 ft. lengths. k No. 3 common l 8–10 ft. lengths. n 1/3 #1, 1/3 #2 & 1/3 #3.

A Rail freight rate from Northwest mills to San Francisco are $11.50 to $15.00 per M ft bm. From Northern Calif. mills $9.00 by rail, $9.50 by truck. All rates for surfaced stock. For rough, add $3.00 to above figures.

PLYWOOD: Plyform grade Fir Plywood, 4' by 8' panels, 5-ply, sanded 2 sides, water resistant glue, carload lots, delivered per 1,000 sq. ft. surface. Seattle base price on 5/8", $179.00: on 3/4", $202.00. Exterior plyform 5/8" $199.00, 3/4" $223.00. For other centers add rail freight increment from table on proper size Oiling and edge sealing charges included. a Lower rate by water shipment b 50,000 lb. minimum.

* Incl. new freight rates. Rates for other cities not avail. as we go to press.

GLASS, EXPLOSIVES, CHEMICALS

WINDOW GLASS — Discounts from jobbers list, Feb. 1, 1950a Single or Double Thickness

EXPLOSIVES — Per lb. 40% Ammonia Gelatin in 50 lb. cases delivered in 200 lb. lots*

	A quality	B quality	Explosives
Atlanta	79%	80%	$0.2315
Baltimore	76%d	78%d	.2315
Birmingham	83%	83%	.1790
Boston	79–10%	79–10%	.2315
Chicago	78%	78%	.2315
Cincinnati	78%	78%	.2315
Cleveland	78–10–10%	78–10–10%	.2715
Dallas	75%	75%	.2390
Denver	81–5%	81–5%	.2365
Detroit	78–10–10%	78–10–10%	.2315
Kansas City	80–10%	80–10%	.2365
Los Angeles	75%	80%	.2340
Minneapolis	78–10%	78–10%	.2365
Montreal	40–25%bc	40–10–5%b	21.60hi
New Orleans	78%	77%	.2365
New York	82–10%	82–10%	.3975g
Philadelphia	78%	80%	.2315
Pittsburgh	82%	82%	.2040
St. Louis	80–10%	80–10%	.2365
San Francisco	70%	70%	.2315
Seattle	75%	78%	.2340

Price of 60% Ammonia Gelatin is $0.0125 per lb. higher than 40%

Glass; a Jobbers' list price per box, 14 x 20, ss, $42.75 for A quality, $37.50 for B quality; 14 x 20, ds, $60.00 for A quality, $52.75 for B quality. b Discount from list, Apr. 1951; sales tax included, but 6% tax exemption not allowable for. c Single thickness. d Discount 6/15/52.

Explosives; * Urban prices influenced by service charges or local storage and delivery regulations do not consistently reflect quantity prices in less congested areas. g In borough of Kings, Queens, and Richmond and in Manhattan south of Canal St., add delivery charge of $20.00 per trip. h F.o.b. city per 100 lb. forcite, 40% Forcite 60%, $23.35. i F.o.b. Beloeil (near Montreal).

40% Ammonia Gelatin price ranges in other than urban areas, per lb. (except Seismograph Grades)

	C/L 20,000 lb. net	Tons	200 lb. lots
E. of the Miss., except Fla. and Me.	$0.179	$0.2115	$0.2315
W. of Miss. to Rocky Mtn. States, Fla. and Maine	.184 – .1915	.2165–.224	.2365–.244
Rocky Mtn. States	.184 – .1965	.2165–.224	.2365–.249
Pacific N. W. States	.1815–.194	.214 – .2265	.234 – .2465
Pacific S. W. States	.179 – .1865	.2115–.214	.2315–.2365

PILES, TIES F. O. B.

PILES

Prices per linear foot, fir and pine, bark off, f.o.b. cars, New York. Fir based on Wash. and Ore. points to New York shipping area; pine based on freight from Norfolk.

Dimensions	Points	Length	By Rail Pine*	By Rail Fir
12-in. at butt	6-in.	30 to 50-ft.	$0.51	....
12-in.— 2-ft. from butt	6-in.	50 to 59-ft.	.54	....
12-in.— 2-ft. from butt	6-in.	60 to 69-ft.	.58	....
12-in.— 2-ft. from butt	6-in.	90 to 100-ft.	....	....
13-in.— 3-ft. from butt	5-in.	91 to 100-ft.	....	....
14-in.— 2-ft. from butt	6-in.	50 to 69-ft.	.50/.68	....
14-in.— 2-ft. from butt	6-in.	70 to 79-ft.	.78/.83	.93
14-in.— 2-ft. from butt	5-in.	80 to 85-ft.	.83/.93	.94
14-in.— 2-ft. from butt	5-in.	85 to 89-ft.	....	1.00
14-in.— 2-ft. from butt	5-in.	90 to 100-ft.	....	1.02

* Pine piling over 80-ft. available only in limited quantities.

RAILWAY TIES

Prices f.o.b. per tie for carload lots:		6"x8"x8' Untr.	6"x8"x8' Tr.	7"x9"x8'6" Untr.	7"x9"x8'6" Tr.
Boston	Oak i	....	....	....	....
	Pine i	....	....	....	....
New York	S. L. Sap Pine	$2.55	$4.35	$3.45	$5.45
	Mixed Oak	3.10	4.65	3.70	5.95
Birmingham	Hardwood	2.40	3.88a	2.85	4.58a
Chicago	Red Oak	....	3.60a	....	4.60a
Los Angeles	Douglas Fir	....	....	....	....
	Redwood	....	....	....	....
Philadelphia	Red Oak	2.55	3.90	3.45	5.10
St. Louis	White Oak	3.08	....	3.90	....
	Red Oak	2.98	3.67a	3.72	4.78a
	Sap Pine or Cypress	3.48a	....	4.54	....
San Francisco	Douglas Fir	2.20e	3.25ef	2.92bf	4.30caf
Montreal	Birch or Maple	....h	....h	....h	....h

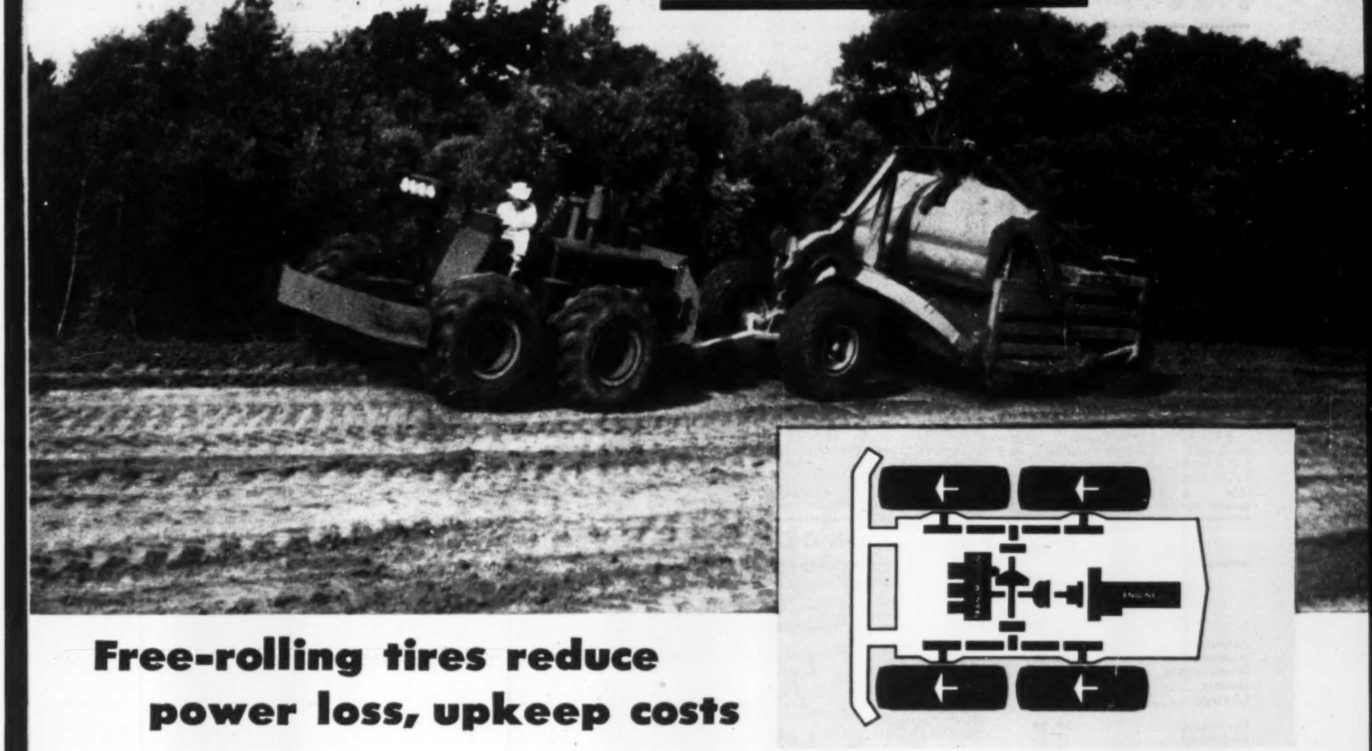
Tr.— Treated; Untr.— Untreated. a Creosoted. b 7" x 9" x 8'. c Empty cell. e Green. f F.o.b. cars. h No constant price available. i Not available.

CHEMICALS

Water, sewage treatment, road work, f.o.b. carlots, New York

Bleaching powder in drums f.o.b. works, per 100 lb	$5.02
Chlorine cylinders, liquid, per lb. f.o.b. works	.0875
Calcium chloride, 77–80%, flaked, 100-lb. paper bag, f.o.b. works, ton	25.00
Silicate of soda, 52 deg., in drums, f.o.b. works, per 100 lb	2.10
Soda ash, 58%, in paper bags, per 100 lb. dense	1.60
Sulphate of aluminum, commercial, in 100-lb. bags f.o.b. works	1.65
Sulphate of copper, in bags, 99% per 100 lb. f.o.b. works	10.85

the tractor with anti-friction drive



Free-rolling tires reduce power loss, upkeep costs

If trucks still ran on metal wagon wheels instead of on pneumatic tires, you'd know what to expect. Slower speeds, harder riding, wasted power, and higher maintenance bills, to mention a few disadvantages. The same limitations apply to slow-moving crawler tractors, compared to rubber-tired Tournatractors. Crawlers naturally run slower — 3 to 8 mph as compared to Tournatractors' 19 mph. And, of course, crawlers ride harder, drive harder, than Tournatractors, and their tracks cost more to maintain.

Think it over

Obviously, with crawlers, you get a major loss of power due to the friction of hundreds of wearing parts grinding in grit. Power that should be converted to speed is spent in turning metal against metal in bearings that just can't be sealed against sand and abrasive materials. So with crawlers you get the slow, "lumber wagon" type of operation . . . plus expense and delay of continuous replacement of ground out sleeve bearings, pins, and track links.

With Tournatractor, big low-pressure tires roll *over* grit — do not grind *in* it. These tough, flexible treads operate on pressures as low as 12 lbs., provide top traction and flotation in any footing. And from engine to tire, your load rides on fast, smooth anti-friction bearings sealed against grit, dust, and water!

Tournatractor tires give you even better service than truck tires. They're bigger, stronger, tougher . . . better adapted to withstand shocks. Their tapered-bead provides *double* the rim-grip. This, plus wider rims, reduces tube, flap, and bead chafing . . . permits retreading . . . gives greater operating stability. Rayon-cord construction adds flexibility, strength, and long life to tire carcass.

Put this anti-friction, low-upkeep, speed and power to work for *you*, with 186 h.p., 19 mph Tournatractor. Ask for cost and output data on work like yours.

Tournatractor anti-friction drive gives you:

Greater speed for getting jobs done. Tournatractor's 19 mph speed forward (8 mph in reverse) increases daily output, reduces net cost. Outproduces crawlers 2 to 1.

Less expense . . . low-pressure rayon-cord construction resists body breaks, makes tire beads last longer. Time and expense of track maintenance are eliminated for good.

Less engine power wasted because rolling resistance and friction with big rubber tires is far less than that of slow-moving tracks, with their hundreds of moving parts.

Better service from retreads because tapered beads grip tighter, tires have a minimum of bead chafing, stand up for recap service.

Greater traction, flotation for successful operation in sand, mud, snow or ice. Goes anywhere — over rails, curbs or pavement without planking.

Greater shock absorption . . . less equipment maintenance needed . . . safer control . . . less operator fatigue.

Job-to-job mobility . . . fast, profitable job-to-job and on-the-job mobility, maneuverability. Eliminates loading and trailer expense . . . saves extra man hours.

Help in compaction . . . big tires roll out voids, don't break or crumble material . . . need less haul road maintenance.

Tournatractor—Trademark T-354-G-b

LETOURNEAU
LeT
EQUIPMENT

R. G. LeTOURNEAU, INC.

Peoria, Illinois

STRUCTURAL CLAY BUILDING TILE, BRICK AND LIME—DELIVERED

	STRUCTURAL CLAY TILE PARTITION — SCORED Per M, lots of 2,000 pieces or over. 3x12x12 in.	4x12x12 in.	8x12x12 in.	STRUCTURAL CLAY TILE — LOAD BEARING — SCORED Per M. lots of 2,000 pieces or over, 8x12x12 in.	10x12x12 in.	12x12x12 in.	BRICK Per M. in quantity Common backing	Straight hard	LIME Per ton, In paper, Carload lot, Hydrated finishing	Common hydrated	Pulverized, or lump
Atlanta	$195.00	$207.00	$247.50	$327.00	$342.00	$381.50	$27.38	$27.38	$19.00	$17.50	$17.50
Baltimore	186.00	198.35	372.00	421.50	549.00	627.00	36.00k	41.00k	30.00	21.00	....
Birmingham	126.00p	142.00p	237.00r	284.00p	.....	.....	23.50ff	28.00gg	26.37	17.10	.
Boston	196.00†	209.00†	392.00†	383.25†	.....	.....	36.85p	39.85p	30.00†	28.00†	.
Chicago	135.00	145.00	280.00	.....	.....	...	26.00	28.00	30.80	26.00	....
Cincinnati	185.00j	195.00j	340.00jdd	......	......	......	34.50j	46.00j	26.37j	24.62j	.....
Cleveland	172.00**	183.00**	......	.....	......	......	34.50	34.50	25.50	23.50	31.00ee
Dallas	......	118.00	.....	......	...	....	19.75	35.25	32.00	21.80	.....
Denver	......	......	......	......	......	......	34.00	40.00	34.80bb	28.00bb	34.00bb
Detroit	127.75	136.25	255.55	......	317.25	362.60	35.25cc	33.60cc	32.50	30.50	.....
Kansas City	115.50	122.50	245.00	245.00	303.50	367.00	27.50	26.50	30.50	24.50	27.00
Los Angeles	r	r	r	r	r	r	27.50§	.....	34.00	34.00	35.00
Minneapolis	171.50p	192.50p	386.00p	192.50wv	......	......	32.00vp	36.00	39.00bbe	29.00bbe	41.00bbde
Montreal	165.00aq	181.00au	325.00au	......	....	......	38.50	44.00	34.80	32.50	24.60u
New Orleans	170.00	170.00	310.00	380.00	......	......	31.00	.....	.....	28.00	28.00
New York	138.70h	147.90h	203.40ch	221.90hn	......	......	35.00	.....	36.00	32.00	...
Philadelphia	145.30	155.00	290.60	348.70	......	......	30.34	35.42	25.00	23.00	2.97
Pittsburgh	112.00	117.00	189.00	216.00	279.00	317.00	36.00	46.00y	25.00	23.00	2.97m
St. Louis	139.00cc	160.00cc	232.00cc	316.00cc	......	......	40.00sl	36.00s	.85saa	.70saa	1.20aaspee
San Francisco	156.85a*	177.10a*	235.30dda*	.....	......	......	37.00	.....	26.60	26.60	2.65m
Seattle	223.00cc	230.00cc	......	240.00ccw	......	......	39.00s	49.00s	37.50shh	1.45#	3.90mhh

† F.o.b. yard Roxbury. a Smooth. b Per 50 lb. bags. c 6 x 12 x 12 in.-3 cell. d Pulverized hot. e 5%, 10th following month. g 5⅓ x 8 x 12. h F.o.b. trucks, job site N.Y.C. j Truck load or over. k $1.00 discount l Red face. m Per bbl., 180 lb. n 7½ x 7½ x 12. Speed title. p Truck lots. q Provincial and Municipal tax extra. r Not used because of earthquake danger. s 2% discount for cash. t 5⅓ x 8 x 11½. u Tax exempt v Sand lime. w 5 x 8 x 12. y Stacked. z Pebble lime price per 80 lb sack. aa Price per sack. Lime not sold per ton. bb LCL. cc Truck delivery. dd 6 x 12 x 12. ee Pebble lime. ff 80% common. gg Select. hh LCL. § F.o.b. yard. # Per 60 lb. sack, no incr., ton price no longer quoted. ** Warehouse delivery. * F.o.b. Stockton.

PAINT, ROOFING—F.O.B. CARLOAD LOTS

	RED LEAD Per 100 lb. in 600-lb. (Approx.) bbl. Dry a	WHITE LEAD Per 100 lb, in 100 lb. cases in oil w	READY-MIXED PAINT Per gal., drums Graphite b	Aluminum c	Ferric Oxide d	ROOFING SUPPLIES Carload lots f.o.b. factory Rolls, slate surfaced, 85–90 lb. per sq.	Asphalt felt, per 100 lb.	Tar felt, per 100 lb.	Asphalt coating per gal.	Tar pitch 360 lb. bbl per ton
Atlanta	$15.50	$27.325	....	....	....	....	....	....	....	....
Baltimore	15.25	26.95	2.65	4.10	3.22	2.50	4.17	4.17	.42	37.00
Birmingham	15.50	27.325	3.90	3.40	....	2.80	2.75	2.75	....	42.00ee
Boston	15.25	26.95	....	...	....	2.67gg	2.79gg	2.79gg	.42a	45.70g
Chicago	15.25	26.95	....	..	...	2.73‡u	3.04‡o	3.04‡o	38.00‡bbr	43.00‡
Cincinnati	15.25	26.95	....	....	....	2.50	2.50	2.50	.46y	46.56
Cleveland	15.25	26.95	2.41pgg	2.83gg	2.42gg	2.90q	2.90o	2.90o	.43y	37.00hh
Dallas	15.50	27.70	....	4.05	....	3.50q	3.75o	4.35o	.36	46.00
Denver	15.75	27.45	3.07	5.15	2.87	3.31o	2.40o	2.65o	.43ff	47.00
Detroit	15.25	26.95	2.35	3.40	2.50	2.75	2.50f	2.50	51	40.00
Kansas City	15.25	27.07	....	2.71ys	2.65	2.50	2.50o	2.50o	313e	48.00
Los Angeles	15.25	27.20	3.30e	4.50e	4.20e	2.48e	1.66e*	l	.55ez	l
Minneapolis	15.25	29.88/27.07	....	....	....	2.40idd	2.50hidd	2.50hidd	.42idd	40.70r
Montreal	....	21.95	2.95Dff	4.05Eff	3.35Fff	4.85t	3.65tf	3.65tf	1.24kt	3.78kt
New York	15.25	26.95	....	....	....	2.50	2.50o	2.50o	.42z	40.70*
Philadelphia	15.25	26.95	3.25	3.65	3.15	2.54	2.94	2.94	.37	26.00
Pittsburgh	15.25	26.95	2.65	2.85	3.15	2.69	2.93o	2.93o	33	45.00
St. Louis	15.25	26.95	....	....	....	2.50	2.50h	2.50h	.33y	41.70
San Francisco	15.25	27.20	2.40	....	3.40	2.95	4.00aa	....	.49	....
Seattle	15.25	27.45	2.96m	2.80m	....	3.58mgcc	3.05hmcc	....	59mcc	52.00jmc

‡ Delivered. Note: Red lead in oil 50c higher than white lead in oil. a Red lead prices change frequently due to pig lead price changes. b U. S. War Dept. Spec. 3-49A. c ASTM Spec. D266-31. d 80% minimum ferric oxide. e 15 lb. f Per 432 sq. ft. g F.o.b. yard, Roxbury. h Per roll. 65 lb. i Net carload lot prices; Minneapolis and vicinity. j Asphalt pitch. k Per cwt. l Not used. m 1% discount for cash. n F.o.b. city. o Per 60-lb. p 6-drum. q Per 90-lb. roll. r F.o.b. factory Chicago. s 466 Med. t Federal tax included. u Per 90 lb. square. v Per ton. w Price to large paint contractors is $1.25 less. x Mineral surfaced. y 55-gallon container z Drums. aa Approximate cost per 100 lbs. bb Roofers coating and cement. Price per ton. cc LCL., truck delivery. dd 2% cash discount. ee Asphalt. in 100 lb. package. ff 5-gal. drums. gg F.o.b. factory. hh Incl. freight. D. Std Black. E Ready-mixed, F. Over 80% ferric oxide. * Aver. wt. approx. 500 lbs

SKILLED AND COMMON WAGE RATES—PER HOUR

	Bricklayers	Carpenters	Struct. Iron Workers	Hoisting Engineers	Plasterers	Electrical Workers	Steamfitters	Common Labor Building	Heavy Const.
Atlanta	$2.90	$2.35	$2.60	$2.25	$2.75	$2.75	$2.90	$1.20	$1.20
Baltimore	3.20d	2.58	3.125i	2.85/3.00	2.95t	2.875	2.875t	1.565i	1.565i
Birmingham	3.00	2.24	2.65	2.16	2.52	2.75	2.80	1.225	1.325
Boston	3.06n	2.625	2.82	3.00	3.05	3.00d	2.95d	1.99n	1.99n
Chicago	3.25k	3.00m	3.05m	2.80	3.43y	3.212f	3.09o	2.20m	2.20m
Cincinnati	3.12	2.625	2.815	2/2.50/3.05	2.90	2.90	2.90	1.92	1.92
Cleveland	3.195i	3.075j	3.075	3.15	3.15i	3.15i	3.07C	2.325	2.325
Dallas	3.50	2.4875	2.75	2.625	3.437	2.75	2.7625	1.325	1.35
Denver	3.45	2.625	2.50	2.63	3.30	2.90	2.82	1.725	1.725
Detroit	3.18m	2.93m	3.18m	2.90	3.31lm	3.05	3.00o	2.18m	2.18m
Kansas City	3.50w	2.55w	2.68w	2.515/2.76w	3.25	2.80	2.90	1.88w	1.88w
Los Angeles	3.175	2.57	2.925k	2.45	3.437	3.00	2.90	1.94	1.94
Minneapolis	3.05	2.55	2.72	2.50	2.90	2.71n	2.70	1.82	1.82
New Orleans	2.95	2.32	2.70m	2.50	2.625	2.65	2.65	1.30	1.30
New York	3.85br	3.24bB	3.50B	3.50B	3.95A	3.795asF	3.445bp	2.05	2.05
Philadelphia	3.61r	2.90	3.32r	3.05/3.30	3.475k	3.45u	3.29g	1.75	2.05
Pittsburgh	3.40	3.00	2.875	3.00	3.15	3.35	3.00	1.90	1.90
St. Louis	3.55c	2.90h	2.90w	2.95	3.175	3.09c	2.90E	1.97	1.97
San Francisco	3.40bk	2.705	2.85	2.56	3.275o	3.175	3.35	1.85	1.85
Seattle	3.30	2.58	2.78	2.71	3.15	2.80	2.75	2.18	2.14
Montreal*†	1.90	1.70	1.80	1.60	1.90	1.80	1.85	1.20	1.20

* Cost of living bonus now included in basic wage. # Includes 5¢/hr tool replacement. † Plus 2% vacation pay.

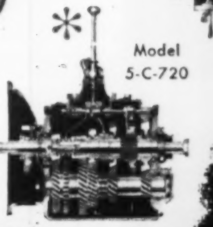
a 6 hr. day. b 7 hr. day. c Incl. 3% vac. stamp fund for bricklayers; 4% for electricians plus 7¼¢ WF. d Incl. 10¢ H&WF. e Incl. 6¢ H&WF. f Incl. 6% WF. g Incl. 11½¢ WF. h $2.45 homes & housing plus 5¢ VF. i Incl. 3½% WF and 15¢ PF. j Incl. 9¢/hr WF. k Incl. 7½¢/hr WF. l Incl. 4% VF. m Incl. 5¢/hr WF. n Incl. 6¢/hr WF. o Incl. 3% WF. p Incl. 3% WF, 3% PF. r Incl. 3% WF and 20¢ PF. s Incl. 5% W&PF, 4% VF, 1% NC, 6 PH. t Incl. 7½¢ H&WF. u Incl. 1½% WF. v Incl. 10¢ WF. w Negotiating. x Await. WSB appr. y Incl. 8% WF. z Incl. 7½¢ IF, 5¢ H &WF, A Incl. 10¢ WF, 10¢ PF & 20¢ B.F. B Incl. 3% WF, 6 PH. C Incl. 7¢ IF. E Plus % WF, plus travel pay per day. F Plus $1/per day travel time.

MEXICO CITY PRICES

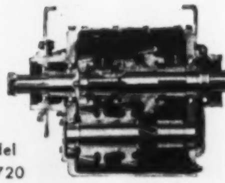
In Pesos, F.o.b. City		Mar. '53	April '53
Common Wages—Building (8 hr. day)	av. per hr.	1.06*	1.06*
Common Wages—Heavy Const. (8 hr. day)	av. per hr.	1.25*	1.25*
Skilled Labor Wages			
Carpenters (8 hr. day)	av. per hr.	2.25*	2.25*
Bricklayers (8 hr. day)	av. per hr.	2.25*	2.25*
Struct. Iron Workers (8 hr. day)	av. per hr.	1.88*	1.88*
Struct. Steel Shapes			
3"-15" x 12 meters	per metric ton	1224.23	1224.23
Reinf. Steel. Corr. Rods			
⅜" x 11 meters	per ton	1386.77	1386.77
½" x 11 meters	per ton	1375.56	1375.56
⅝" x 11 meters	per ton	1364.35	1364.35
¾" x 11 meters	per ton	1353.14	1353.14
⅞" x 11 meters	per ton	1353.14	1353.14
1" x 11 meters	per ton	1353.14	1353.14
Gravel truck load of 3½ cu. meters			
Blue Gravel	per tr. load	55.00	55.00
Rose Gravel	per tr. load	52.00	52.00
Cement, Std. Port. (Tolteca)	per ton	160.00	160.00
Lumber			
Mex. Sacred Fir (OYAMEL)	per M ft.	750.00	750.00
1st Class Pine	per M ft.	1350.00	1350.00
2nd Class Pine	per M ft.	1200.00	1200.00

* Increase by 1/6th—work 6 days, paid for 7 days.

ENR Skilled Average: (Bricklayers, Carpenters, Iron workers): $2.955 **ENR Common Average**: $1.82

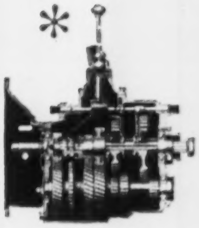


Model 5-C-720

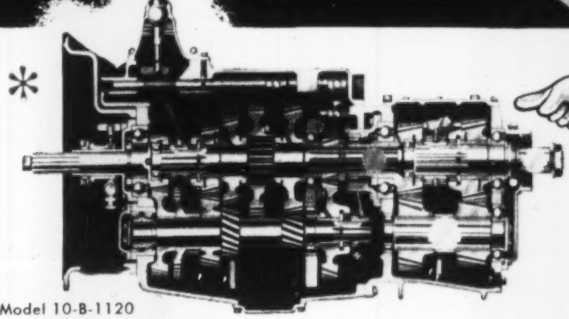


Model 3-A-65

You write the Specifications!



Model 5-A-620



Model 10-B-1120

Fuller
TRANSMISSIONS ®

Before buying a new truck, you carefully consider all factors related to the job you'll want your truck to do . . . every road and load condition . . . everything that affects your particular operation.

You specify the "make" of truck . . . the type . . . the power plant . . .

* Specify the transmission, too!

Among the more than 110 Fuller Transmission models for every heavy-duty job—there is a "proved in service" unit to fit *your* job . . . designed to operate quietly and dependably . . . profitably . . . and built to stand up under the most grueling conditions, on or off the highway.

Write for Condensed Specification Folder.

FULLER MANUFACTURING COMPANY (Transmission Division), KALAMAZOO 13F, MICHIGAN

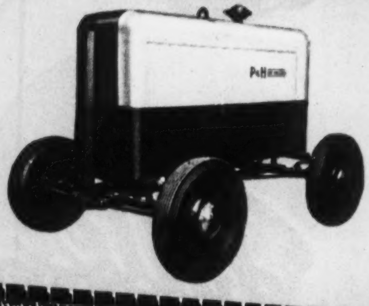
Unit Drop Forge Division, Milwaukee 1, Wis. • WESTERN DISTRICT OFFICE (SALES & SERVICE—BOTH DIVISIONS), 1060 E. 11th Street, Oakland 6, Calif.

11 reasons you're money ahead

-when you weld with a P&H Engine-Driven DC Arc Welder

1. Controls are convenient, marked for easy identification.
2. Dial-lectric Remote Control provides instantaneous heat control right at the work.
3. Magnetic-type across-the-line starter provides low-voltage and overload protection.
4. Specially designed interpole provides a very stable arc.
5. Dynamically balanced armature operates more smoothly — has high mechanical efficiency — provides greatly reduced maintenance and longer welder life.
6. Separate fans for both generator and motor give more cooling capacity.
7. Prelubricated bearings eliminate regular-interval greasing, cut maintenance costs.
8. Easy accessibility makes inspection simple and speedy.
9. Light weight makes unit easier to move.
10. Auxiliary AC power supply (3KVA) lets you run power tools and floodlights.
11. Weatherproof construction protects welder in any climate.

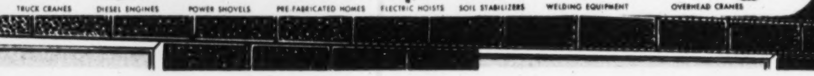
P&H WELDING DIVISION
HARNISCHFEGER
CORPORATION
4404 West National Avenue, Milwaukee 46, Wis.



The P&H WN-301 DC Welder is available in 2-wheel and 4-wheel mountings. Ask your P&H representative or distributor for further information — or write us.

2590

the **P&H** *line*


TRUCK CRANES
DIESEL ENGINES
POWER SHOVELS
PRE-FABRICATED HOMES
ELECTRIC HOISTS
SOIL STABILIZERS
WELDING EQUIPMENT
OVERHEAD CRANES

CONSTRUCTION REPORTS

Bids Asked—Low Bidders—Contracts Awarded—First Section

Compiled by Business News Department—Engineering News-Record, 330 W. 42nd St., New York 36, N. Y., ELSIE EAVES, Manager
J. A. MAHONEY, M. O. WETZEL, L. M. WINISKI, M. E. SCIORRA, F. S. DEMBEK, Reports.
J. H. WEBBER, M. R. ROESSLER, E. R. HUBER, Statistics.

NEW ENGLAND

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **Ebasco Services, Inc.**, 2 Rector St., New York, N. Y. CA. **$45,000,000**, design and construct, hydro-electric plant, Upper Fifteen Mile Falls on Connecticut River, Littleton, NEW HAMPSHIRE. New England Power Co., 441 Stuart St., Boston, Mass. CD 10/21/52.

VERMONT—State Hy. Dpt., Montpelier,

Lambert Constr. Co., Inc., White River Jct., Vt., LB **$448,026**, sub-base, bit. surf. 2¾ mi. to extend pavement on Rte. 100 south of Waitsfield through Warren Village. CD 5/6/52.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION

† **N. Y., Westhampton**—DRAINAGE, etc.—B.A. 5/11—Purch. & Contg. Office, Suffolk AFB, Westhampton AFB, Westhampton, drainage sys. and laying bit. shoulders, Westhampton Air Force Base, IFB-30-168-53-28. CD 10/15.

N. Y., Richmond—B.A. 5/27—Dpt. P. Wks., Municipal Bldg., New York, Zone 7, Contr. 1, Oak Wood Beach Intercepting Sewers, Oak Wood Beach Sewage Treatment Works, Richmond Boro. Plans deposit $25. CD 10/11/48, under New York.

BIDS ASKED—BUILDINGS

Pa., Sharon — HOUSING — B.A. 6/1—Mercer County Housing Auth., Sharon, 76 unit federal housing on site of Reynolds Village along Rte. 18, north of here. $500,000.

HEAVY CONSTRUCTION
LOW BIDS AND CONTRACTS

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

M. A. Gammino Constr. Co., 728 Valley St., Providence, R. I., **S. A. Healy Co.**, 61 Westchester Ave., White Plains, N. Y., and **Mt. Vernon Contg. Corp.**, 439 N. Terrace Ave., Mt. Vernon, N. Y., CA. **$17,440,509**, est. $19,274,000, constr. 16.4 mi., incl. building 9 highway and railroad grade separation structures, 3 bridges requiring an estimated 1,800 tons structural steel, along the Thruway route between Suffern in Rockland Co. and Harriman in Orange Co.;

A. S. Wikstrom, Inc., Box 217, Skaneateles, N. Y., CA **$2,156,257**, est. $2,652,000, grading, paving, drainage facilities 2.26 mi. Thruway, from point on south side of Mohawk River opposite Caroga Creek southeasterly to Ft. Plain, constr. 1.96 mi. access roads, Montgomery Co.;

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. CA **$5,690,325**, est. $7,150,000, constr. 17.59 mi. on Thruway Rte. between Slusser Rd., north of East Pembroke and Rte. 33 on east of Batavia, incl. traffic interchange with Rte. 98 to north of Batavia, Genesee Co. Grand total $25,287,091. Bids Mar. 26, awarded 4/16. CD 3/30, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., The Governor Alfred E. Smith State Office Bldg., Albany,

Johnson, Drake & Piper, Inc., 86 Trinity Pl., **New York**, N. Y., CA. **$2,436,474**, est. $2,505,000 constr. 4 highway bridges, 1 railroad grade separation structure, 2 creek bridges on the Thruway Rte. between Erie Co. line and Slusser Rd., Genesee Co.;

Herbert F. Darling, Williamsville, N. Y., CA. **$677,928**, est. $774,000, substructure work 0.56 mi. on north approach to Fuhrmann Blvd. High Level Bridge in Buffalo, Erie Co. Bids Mar. 26. CD 3/30, under LB.

▲ **NEW YORK**—State Dpt. P. Wks., State Office Bldg., Albany,

The Lane Constr. Corp., 37 Colony St., Meriden, Conn. CA. **$1,703,617**, est. $1,923,000, New York State Thruway-Catskill Sect. Sub. 3A and 4 (Delaware Ave.-Normanskill); Southern Blvd. Interchange; Frisbie Ave. Ext.; McCarthy Ave.; Marginal R. "J", Thy. 2.2 mi., Acc. 1.65 mi. C. T. 53-4, C. T. 53-3P, S. T. C. 53-9. S. T. 53-10, Albany Co.;

Serafini Constr. Co., Inc., Conklin Rd., Binghamton, N. Y., CA. **$1,930,329**, est. $2,035,000, 4.18 mi. Rochester City-Mt. Read Blvd., FAC 50-5; Mt. Read Blvd.-Lake Ontario State Parkway, Pt. 1, FASH 50-4, FAC. 53-3P, FASH 53-4P, Monroe Co.; CA **$1,337,870**, est. $1,648,000, 2.67 mi. Binghamton-Windsor, Pt. 2, S. H. 5022, FARC 53-18, Broome Co.;

Dan-Bar Contg. Co., Inc. & W. E. O'Neil Constr. Co., 220 Pulawski St., Syracuse 4, N. Y., CA. **$1,237,523**, est. $1,394,000, 2.7 mi. New York State Thruway-Ontario Sect. Sub. 8A (Mattydale Interchange), O.T. 53-2, Onondaga Co.;

Zara Contg. Co., Inc., Engel St., Hicksville, L. I., N. Y. CA. **$927,125**, est. $1,059,000. 2.53 mi. Maywood-Babylon, SH 1841, Maywood-Babylon, Pt. 2, Babylon Village, SH 5299, FARC 53-4, FASH 53-2, Suffolk Co.;

John Arborio, Inc., W. Cedar St., Poughkeepsie, N. Y., CA **$2,624,038**, est. $3,374,000, Palisades Interstate Park-Goshen, Pt. 3 (Chester-Goshen); Chester-Florida, S.H. 1809; Chester-Goshen S.H. 156, Goshen Village; S. Church. W. Main Sts. and Greenwich Ave. S.H. 1329 and 4 access roads, 4.59 Hy., 1.64 Acc. mi. FASH 53-7, FARC 53-17, Orange Co.;

Arcole Midwest Corp., 3225 Main St., Evanston, Ill., CA **$4,425,394**, est. $5,227,000, New York State Thruway-Mohawk Sect. Subs. 1 and 2, (Gordon Rd-Albany Co. line); Co. Rd. 32R; Co. Rd. 26R; Co. Rd. 24R; Mariaville Rd. Conn.; Co. Rd. 9R; Co. Rd. 7R; South Schenectady-Mariaville; S.H. 788; Schenectady-Duanesburg, Pt. 1, SH 880; Schenectady-Guilderland, S.H. 577, Thy. 6.542 mi., Acc. 3.432 mi. M. T. 53-3, S. T. 53-7, R.C. 53-19, Albany and Schenectady Counties;

B. Perini & Sons, Inc., 73 Montwait Ave., Framingham, Mass., CA. **$7,948,186**, est. $9,481,000, New York State Thruway-Mohawk Sect. Sub. 12D and 13A, (Fort Plain-Randall); Canajoharie Interchange; 6 access drives; Fort Plain-Canajoharie, Canajoharie-Fultonville, Pt. 1, S.H. 8348, Canajoharie-Fultonville, Pt. 2, SH 8371, 10.4 mi. Thy., 3.33 mi. Acc. M.T. 53-4, S.T. 53-8, R.C. 53-21, Montgomery Co. Grand total $22,134,082. Bids Mar. 5. CD 3/9, under LB.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comm., 11 N. 4 St., Harrisburg,

J. C. Langenfelder & Son, Inc., Boston and Ponca Sts., Baltimore, Md., CA. **$5,336,093.**, constr. structures, grading, drainage, paving 3.26 mi. Sect. 32D, Delaware River Extens.; and constr. structures, grading, drainage, paving 2.85 mi. Sec. 32C, Delaware River Extens., Montgomery Co. Bids Apr. 2, awarded Apr. 23. CD 4/7, under LB.

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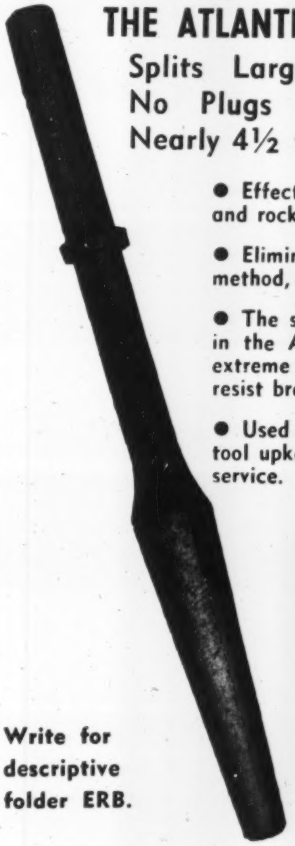

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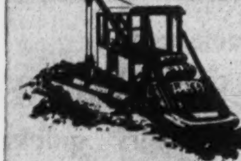

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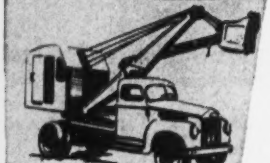

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BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Caye Constr. Co., Inc.,** 356 Fulton St., Brooklyn 1, N. Y., CA **$4,644,800,** general constr.;

H. Sand & Co., Inc., 291 Broadway, New York 7, N. Y., CA **$623,100,** heating and ventilating;

Lipsky & Rosenthal, Inc., Lexington Ave. and 115 St., New York 29, N. Y., CA. **$536,136,** plumbing for Hammell HOUSES, Proj. No. NY 5-27 in area bounded generally by Freeway, Hammell Blvd., Beach 81 St., Rockaway Beach Blvd. and Beach 86 St., Queens Boro, ROCKAWAY, N. Y. New York City Housing Auth., 63 Park Row, New York 28, N. Y. Grand total $5,804,036. Bids Mar. 3. CD 3/12, under LB.

Barclay White & Co., 22 N. 36 St., Phila., Pa., CA, **$300,000,** WAREHOUSE, Lawrence Twp., TRENTON, N. J. Smith, Kline & French, Inc., 1011 W. Butler St., Phila., 1, Pa. CD 1/21.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION

† **Fla., Key West**—B.A. 5/19—Dpt. Navy, Officer in Charge of Construction, Naval Base, S. C., replacing fresh and salt water lines at AUW School, Naval Base, NOY 77326. Plans deposit $10.

† **Fla., Key West**—B.A. 5/20—Dpt. Navy, Officer in Charge of Construction, Naval Base, S. C., foundations, valve pit and valve pit piping for new 250,000 gal. elevated water tank, U. S. Naval Base, NOY 77398. Plans deposit $10.

† **Kentucky**—B.A. 5/20—U. S. Eng., P. O. Box 97, Memphis 1, Tenn., 6,000 cu. yd. embankment, slope dressing, sodding, fertilizing, mulching, addnl. compaction Levee Item No. L-932 R, approx. Levee Stations 0 plus 33-1 plus 19 along Hickman City Levee in southwest part of Hickman, point on levee about 600 ft. above jct. of Hys. No. 94 and No. 125 extens. down levee approx. 3,900 ft., CIVENG-40-041-53-134

BIDS ASKED—BUILDINGS

Ky., Louisville—SCHOOL—B.A. 5/18—Jefferson Co. Bd. Educ., 618 W. Jefferson, elementary school at Bardstown Rd. and Lancashire Blvd. $500,000, Louis & Henry and Fred Hartstein, MacDowell Bldg., archts. E. R. Ronald & Assoc., 554 S. Third St., engrs CD 2/26.

† **Tenn., Knoxville**—MESS HALL, etc.—B.A. On or About 5/20—U. S. Eng., 303 Federal Office Bldg., Nashville, Zone 1, approx. 1,800 sq. ft. concrete block mess hall addns., alterations; airmens club and hobby shop, approx. 28x48 ft. each, prefabricated metal constr., Cambria Range Station, near here, Serial No. ENG-40-058-53-16

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **I-T-E Circuit Breaker Co.,** 18 and Hamilton Sts., Phila., Pa. CA **$220,686.** furnish outdoor electrical switching station and indoor electrical lead-center unit sub-stations, Louisiana Ordnance Plant, Eng. 03-050- (Neg 53-63,), SHREVEPORT, LA. U. S. Eng., 300 Broadway, Little Rock, Ark.

Modern Welding Co., Owensboro, Ky. LB **$265,611.** natural gas transmission main and distr. sys., appurtenances, incl. 109,100 lin. ft. 1 to 4-in. c.i. pipe, 3 in. i.d. steel pipe, 490 each 5-B meter service connections initial regulator and odorizing, station, regulator station, FULTON, KY. City, W. S. Atkins, city recdr., Fulton, Ky. Bids Apr. 16. CD 4/3.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Robinson Constr. Co.,** 5540 W. Park St., St. Louis, Mo. CA **$1,750,000.** Produce MART, incl. two 106x651 ft. bldgs., two 42x260 ft. bldgs., parking space, Benchel, LOUISVILLE, KY. Louisville Produce Assn., Louisville, Ky. Awarded Apr. 22. CD 8/11/50.

(Continued on page 85)

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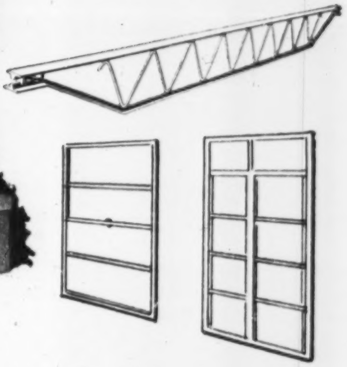
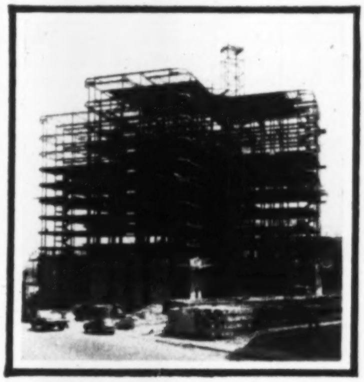
RORICK APAR

Rorick Apartments, Omaha, Neb.
M. J. Lahr, *Architect*
Rorick Construction Co., *Contractors*





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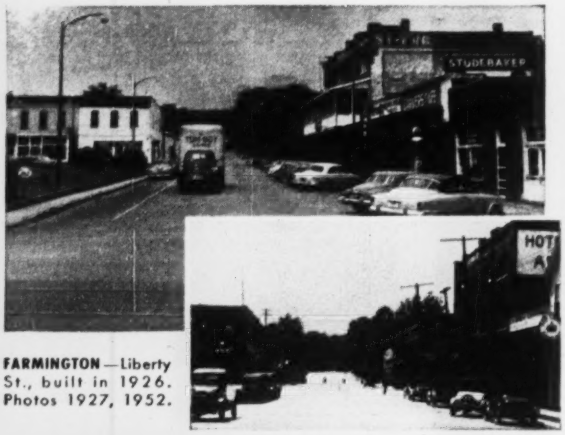
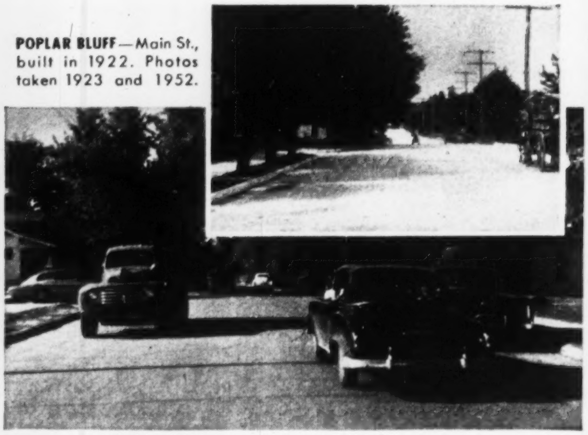


FARMINGTON—Liberty St., built in 1926. Photos 1927, 1952.



POPLAR BLUFF—Main St., built in 1922. Photos taken 1923 and 1952.

SEDALIA—16th St. was built in 1926. Photos 1927, 1952.

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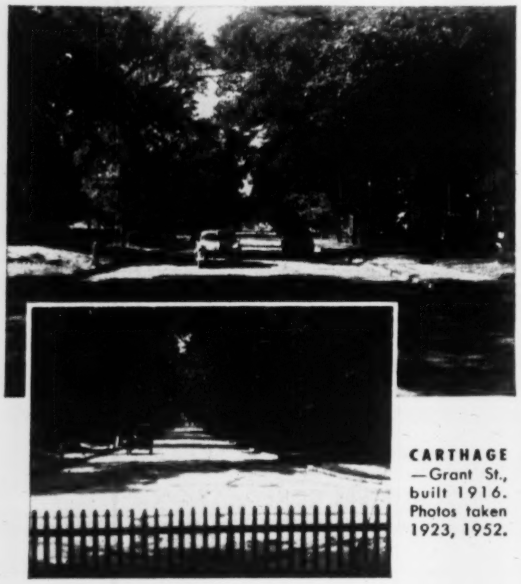
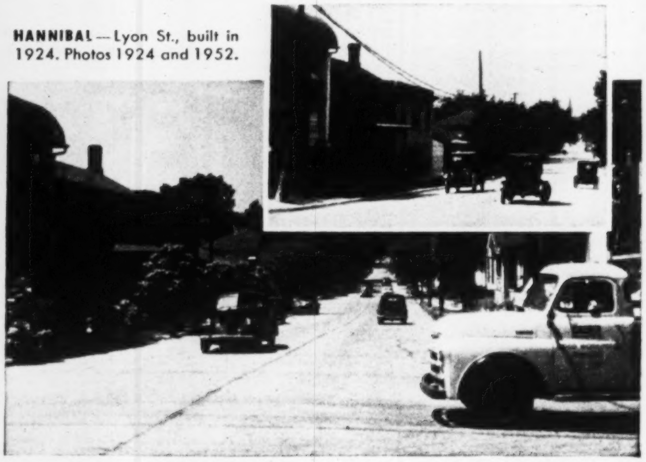


CARTHAGE—Grant St., built 1916. Photos taken 1923, 1952.



HANNIBAL—Lyon St., built in 1924. Photos 1924 and 1952.

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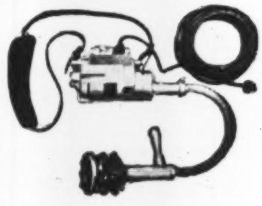

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(Continued from page 82)

MIDDLE WEST

BIDS ASKED—HEAVY CONSTRUCTION

O., Clinton—B.A. 5/12—Comrs. Summit Co., Court House, Akron, 68 ft. span steel truss bridge over Tuscarawas River, 24 ft. roadway, one 4 ft. sidewalk, roadway and sidewalk approaches on U. S. 21. Plans deposit $5.

SOON LETS CONTRACT—BUILDINGS

▲† **O., Cleveland**—FACTORY—Aluminum Co. of America, Alcoa Bldg., Pittsburgh, Pa., soon lets contract factory bldg. with 10 story bay to house 2 hydraulic forging presses; foundation work, grading, piling, retaining walls, etc. for factory bldg. Est. $40,000,000. L. B. Kuhns, Alcoa Bldg., Pittsburgh, Pa., engr. CD 4/27.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

OHIO—State Hy. Dpt., Columbus,
rejected bids Apr, 10, c. conc. base wid'n. and b. conc. surf. 1:78 mi. USR 23, Sect. 3.36. A-F-626 (15), Scioto Co. LB **$456,251,** est. $382,000. CD 4/17, under LB.

▲ **Hunkin-Conkey Constr. Co.,** 1740 E. 12 St., Cleveland 14, O. CA. **$5,188,058,** est. $6,000,000, aeration and sludge settling tanks, supporting buildings and appurtenances at southerly sewage disposal plant, Cuyahoga Heights, CLEVELAND, O. City, City Hall, Cleveland 14, O. Bids Mar. 27, awarded Apr. 22. CD 4/14, under LB.

▲ **Frank Messer & Sons, Inc.,** Paddock Rd., Cincinnati, O. CA. **$1,239,000** 2 story, 162 x 242 ft. fieldhouse, armory, University Ave., CINCINNATI, O. University of Cincinnati, Clifton Ave., Cincinnati, O. Bids Apr. 15, awarded Apr. 21. CD 4/22 under LB.

▲ **American Bridge Div., United States Steel Corp.,** 525 Wm. Penn. Pl., Pittsburgh, Pa., CA. **$5,688,000,** furnish and erect structural steel for one of process bldgs.;

Westinghouse Electric Corp., 207 W. 3 St., Cincinnati, O., CA **$3,297,861; General Electric Corp.,** Portsmouth, O., CA **$1,749,300; Roller-Smith Corp.,** 1000 8th Ave., Bethlehem, Pa., CA **$12,350,** furnishing electrical equip. for unit sub-station for a process bldg.;

Midwestern Steel Building Co., Inc., S. W. 56 and West Sts., Oklahoma City., Okla., CA. **$179,595,** furnish and fabricate prefabricated steel bldgs. for GASEOUS DIFFUSION PLANT (Subcontractors under Peter Kiewit Sons' Co., P.O. Box 268, Portsmouth, O.) for Atomic Energy Comn., 1901 Constitution Ave. N. W. Wash. 25, D. C., PIKETON and WAKEFIELD, O. CD 8/13/52, under CA.

† **American Bridge Div., United States Steel Corp.,** 208 S. La Salle St., Chicago, 4, Ill., CA, **$664,950** fabrication and erection of structural steel for maintenance hangar at Air Force Base, BUNKER HILL, IND. Dist. P. Wks. Office, Ninth Naval Dist., Bldg. 1-A Great Lakes, Ill. Bids Mar. 25. CD 3/4.

▲ **ILLINOIS and MISSOURI**—Village of Cahokia, Ernest Sauget, pres., Village Bd., Cahokia, Idd.,
Wabash Drilling Co., 7649 Delmar Blvd., University City, 5, Mo., CA total cost **$10,000,000** test borings for 10,915 ft. steel truss toll bridge across Mississippi River from Green St. between 4 and 5 Sts., in Cahokia, Ill. and intersection of Chippewa and Marine Sts., in St. Louis, Mo. Hunt & Patterson, 1605 Tower Grove Ave., St. Louis, 10, Mo., engrs. CD 3/3/48.

▲ **The White Constr. Co.,** 1735 Fullerton Ave., Chicago, Ill., LB **$1,045,191,** paving Washington and Hamlin Blvds, CHICAGO, ILL. Chicago Park District, 425 E. 14 St., Chicago, 5, Ill. CD 6/12, under Unclassified.

▲ **John D. Harrison,** 467 S. Woodward St., Birmingham, Mich. Owner Builds. **$2,100,000.** 115 brick ranch HOUSES on 90 acres, Bloomfield Farms subdivision, Inkster, Maple Section, BLOOMFIELD HILLS, MICH.

▲ **Darin & Armstrong, Inc.,** 2041 Fenkel St., Detroit, Mich. CA **$1,423,447.** 2 story bsmnt., brick, steel HIGH SCHOOL addn., ECORSE, Mich. Bd. Educ., Ecorse Public Schools, R. Montie, secy, Ecorse, Mich. Bids Apr. 13. CD 3/25.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Zehman-Wolf Constr. Co.,** 13484 Cedar Rd., Cleveland Heights, O., CA. **$3,054,000,** general constr.,
Feldman Bros. Co., 2332 Prospect Ave., Cleveland, O., CA **$914,374,** plumbing, heating, ventilating for 408 unit public HOUSING (Cedar Apartments Extens.) Central and Scovill Aves. between E. 30 and E. 26 Sts., CLEVELAND, O. Cleveland Metropolitan Housing Auth., 1325 W. 25 St., Cleveland, O. Bids Feb. 25, awarded Apr. 16. CD 3/2, under LB.

Marvin Helf, Inc., 10001 Carnegie Ave., Cleveland, O. Owner Builds. **$700,000.** 61 ranch-type HOUSES in Mentor Headlands Park, MENTOR, O. Carl T. Apicella Organization, 4302 Prasse Rd., South Euclid, O., archt.

▲ **Olmsted Estates, Inc.,** 2700 Lorain Ave., Cleveland, O. Owner Builds. **$5,500,000.** 300 ranch-type HOUSES, 75-acre site between Clague Rd. and Grace Ave. near Mastick Rd., NORTH OLMSTED, O. Wallie Anderson, c/o Central Realty Co., 2700 Lorain Ave., Cleveland, O., archt.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION

† **North Dakota**—B.A. 5/21—U. S. Eng., Fort Lincoln, Box 300, Bismarck, constr. streets, sidewalks and utilities at Fort Berthold Indian Reservation, Inv. 32-015-53-52. CD 4/21.

RECTANGULAR CLARIFIERS
FOR SEWAGE AND TRADE WASTES

Particularly suitable where space is limited or where sludge delivery is desired at one end of tank. Consists of a bridge crane spanning width of the tank, supporting sludge scraper and skimmer, which moves automatically back and forth.

Many of these units are now operating in sewage and industrial wastes plants throughout the country.

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Bulletin 31-D-55.

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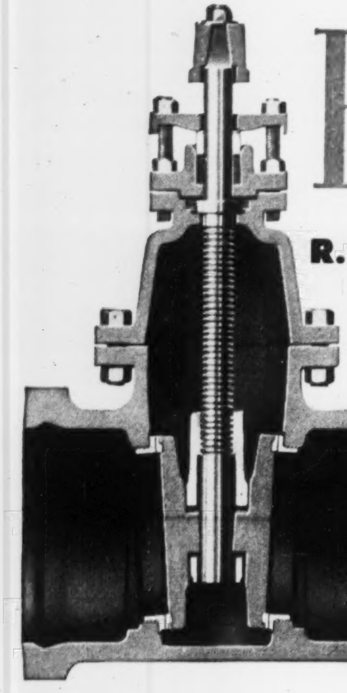

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Only three moving parts—the spreader and two discs. In opening, the discs are lifted into the bonnet clear of the seats. In closing, they are wedged into place without distortion. Working pressure up to 175 lb. Tested to 300 lb. Rigidly inspected. Conform to AWWA specifications. Supplied with bell, ınged or mechanical joint pipe connections.

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BIDS ASKED—BUILDINGS

Mo., Jackson—AUDITORIUM—GYMNASIUM—B.A. 5/14—School Dist., Bd. Educ., 1 story, ground floor, 132x137 ft., brick, steel, concrete auditorium-gymnasium, Plans deposit $25. Bonsack & Pearce, Inc., 308 N. 6 St., St. Louis, Zone 1, archt.

▲ **Tex., Texas City**—CATALYTIC REFORMING UNIT—Bids Asked—Pan-American Refining Corp., Texas City, catalytic reforming unit. $11,250,000. CD 12/17/51.

SOON LETS CONTRACT—BUILDINGS

Tex., Corpus Christi—NURSES HOME—Sisters of Charity of The Incarnate Word, c/o Mother Mary L. Vincent, admin., 1436 Third St., soon lets contract 150x150 ft. masonry, nurses home. $500,000. Wade, Gibson & Martin, 419 Med. Prof. Bldg., archts. M. Staley, 31 Chandler Bldg., San Antonio, and **T. A. Vernor** Taft, engrs. CD 4/21.

Tex., Houston—GARAGE—South Texas National Bank, 213 Main St., soon lets contract auto garage and storage, $750,000. Kenneth Franzheim, 2402 Crawford St., archt. Howard Johnson & Kelly, Scanlan Bldg., engrs. CD 4/8.

▲ **Tex., Houston**—OFFICE—South Texas National Bank, 213 Main St., soon lets contract 21 story bsmnt., sub-bsmnt. office and bank with penthouses, $4,000,000. Kenneth Franzheim, 2402 Crawford St., archt. Howard, Johnson & Kelly, Scanlan Bldg., engrs. **CD 4/8.**

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **A. C. Benson Clearing Co.**, Commercial Natl. Bank, Muskogee, Okla. and **H. D. Youngman**, 703 W. 12 St. Baxter Springs, Kan., CA, **$1,837,294**, clearing 15,800 acres timbered land in Texarkana Reservoir area, Bowie and Cass Counties, Inv. 53-174, TEXAS. U. S. Eng., foot of Prytania St., New Orleans, La. Bids Apr. 8. CD 4/14.

Lone Star Gas Co., 1915 Wood St., Dallas, **Tex.** Owner Builds. **$250,000.** field compressor station, near Jacksboro, Jack Co., TEXAS. CD 4/10.

Trotti & Thomson, 390 S. 4th St., Beaumont, **Tex., LB $140,615.** Proj. D-1, trunk sanitary sewer lines;

Foster Bros., 1948 Stadium Rd., Beaumont, Tex., LB **$96,704**, Proj. D-2, sewage treatment plant imprvs., BEAUMONT, TEX. City, Beaumont, Tex. George J. Schaumburg, 2678 Laurel Ave., Beaumont, Tex., engr.

H. B. Zachry Co., Constr. Div., Box 2570, San Antonio, Tex., GA. **$554,703.** 115,900 lin. ft. concrete curbs and gutters; 260,400 yd. asphalt street paving, BIG SPRING, TEX. City, Big Spring, Tex. Bids Apr. 14. CD 4/22, under LB.

City, City Hall, Waco, Tex., Force Account. **$150,000,** sewage disposal unit; **$200,000,** some new sanitary sewer lines, WACO, TEX. D. Jones, city engr. CD 5/21.

† **Peter Kiewit Sons Co.**, 1950 S. Colorado Blvd., Denver, Colo., LB, **$117,105,** Kelly Road Detention Dam, near Aurora, Inv. 25-066-53-175, COLORADO. **U. S.** Eng., 1709 Jackson St., Omaha, **Neb. Bids Apr. 21.** CD 3/25.

BUILDINGS

LOW BIDS AND CONTRACTS

Krumm & Bogert Builders, 8533 Wabash Ave., Berkeley 21, Mo. CA Est. **$570,800.** fifty-three brick RESIDENCES, GARAGES, Sequnia Court and Reavis Barracks Rd. east of MacKenzie Rd., AFFTON (ST. LOUIS 23 P. O.), MO. Pine Lawn Bank & Trust Co., 8700 Natural Bridge Rd., Normandy 21, Mo.

Claubaugh Constr. Co., 8015 Forsythe Blvd., Clayton 24, Mo. Owner Builds. **$300,000.** twenty-nine 1 story, 24x38 ft. frame RESIDENCES, Nemnich Ave. and Scottidale Dr., BADEN (ST. LOUIS 15 P. O.), MO.

Schattgen Co., 1634 Chambers Rd., Baden 15, Mo. Separate Contracts twenty-eight 1 story, 24x38 ft., frame RESIDENCES, Scottdale Dr. and Nemnick Ave., BADEN (ST. LOUIS 15 P. O.), MO.

Walter A. Beck & Co., 9918 Clayton Rd., Richmond Heights 17, Mo. CA Est. **$300,000.** 3 story bsmnt. OFFICE Bemiston and Carondelet Aves., CLAYTON (ST. LOUIS 5 P. O.), MO. Alfon W. Larson Jr., & Roger G. Larson, 7807 Carondelet Ave., Clayton 24, Mo.

Henry Cernicek, c/o Graf & Case Realty Co., 9 S. Florissant Ave., Ferguson 21, Mo. Owner Builds. est. **$500,000.** 125 brick RESIDENCES, on 54 acre tract north side of U.S. S. 66 east of Old Florissant Rd., FERGUSON (ST. LOUIS 21 P. O.), MO.

McKnight Heights Co., 8147 Delmar Blvd., University City 5, Mo. CA Est. $300,000. twenty 1 story, brick 52x28 ft. RESIDENCES, attached GARAGES, 8600 block of Spoon Dr., UNIVERSITY CITY (ST. LOUIS 5 P. O.), MO. Helen Rogers, 8147 Delmar Blvd., University 5, Mo. Isadore Shank, 8135 Forsythe Blvd., Clayton 24, Mo., archt.

Parson Constr. Co., 512 Grain Exchange, Omaha, Neb. CA **$221,000.** WAREHOUSE, OMAHA, NEB. Fuchs Machinery & Supply Co., 513 S. 15 St., Omaha, Neb. Bids Apr. 10. CD 4/8.

J. B. Hughes, Box 448, Brownsville, Tex., LB **$377,800,** est. $432,000. COURT HOUSE, EDNA, TEX. Jackson Co. Court House, Edna, Tex. Bids Apr. 20. CD 4/1.

Spaw-Glass, Inc., 2518 Times Blvd., Houston, Tex. CA **$113,677,** est. $125,000. masonry addn. to STORAGE and SUPPLY, HOUSTON, TEX. Cravens, Dargan & Co., 1903 Hermann Dr., Houston, Tex. Bids Apr. 15. CD 4/7.

▲ **Fish Engr. Corp.**, M & M Bldg., Houston, Tex. CA **$1,750,000.** addn. to anhydrous ammonia **PLANT** at Ordnance Depot, **HOUSTON, TEX. San Jacinto** Chemical Corp. c/o San Jacinto Ordnance **Depot,**

(Continued on page 89)

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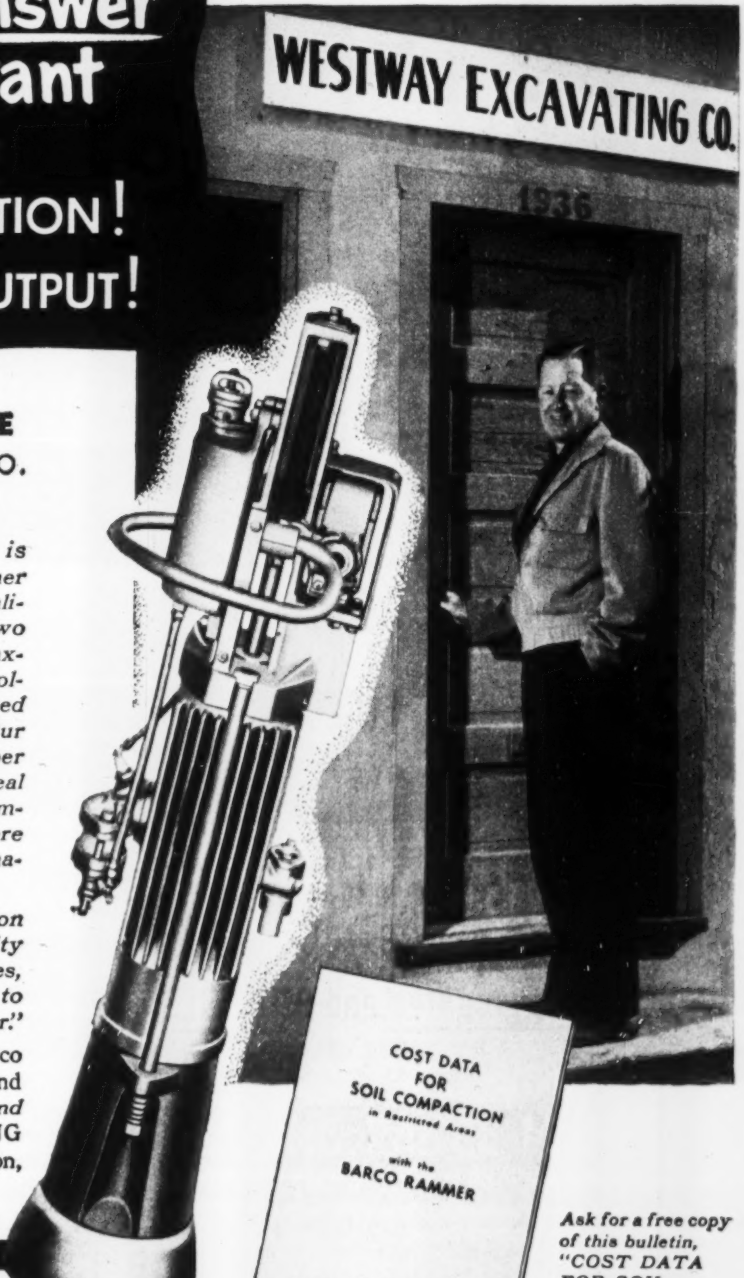

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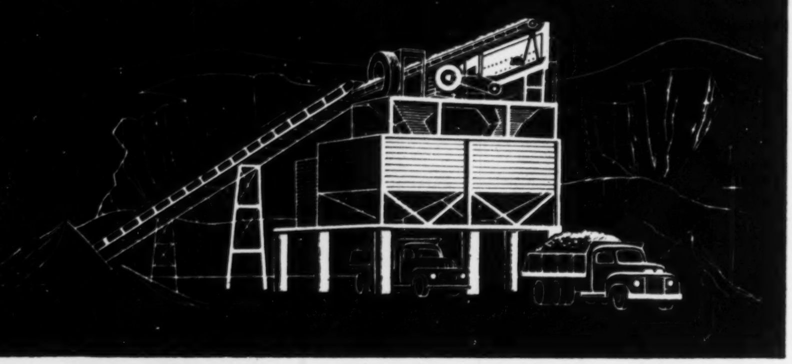
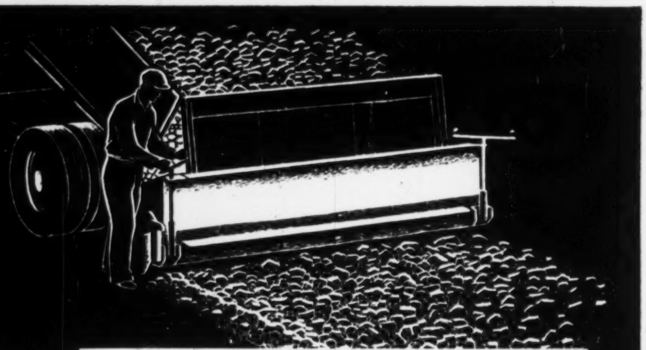


Costs are DOWN on the job...



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Quarry owners are able to make a blended aggregate that has been *graded at the quarry* to provide the specified percentage of each size of stone that assures close interlocking when compacted. The result is higher production for the quarry; savings in time and labor for the Road-Builder; better roads at lower costs for the city, county or state.

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Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo.
Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 6, D. C. San Juan 23, P. R.

(Continued from page 86)

Houston, Tex. Chemical Constr. Corp., 488 Madison Ave., New York 22, N. Y. engrs. CD 4/23.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

† **California**—B.A. 5/21—Bureau Reclamation, Dpt. Interior, Bldg. 53, Denver, Colo., furnishing, del. f.o.b. cars shipping point or f.o.b. cars Tracy, pumping units, for lateral pumping plants, Plainview Water District, Delta Mendota Canal Distribution Systems, Central Valley Proj., Spec. DS 3943. L. N. McClellan, ch. engr. CD 4/20/45.

† **Washington**—B.A. 5/21—Bureau Reclamation Dpt. Interior, Field Office Bldg. "A", 3 and A Sts., N. E., Ephrata, earthwork, pipe lines, structures Area W-7 (Block 78) Laterals West Canal Laterals, Columbia Basin Proj. in Grant Co., Spec. DC 3923.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

† **UTAH**—Bureau P. Rds., Dpt., Commerce, Federal Bldg., Ogden,

L. A. Young, Richfield, Utah, CA **$127,785,** est. $152,000, bit. 14.045 mi. Enterprise St. George Forest Hy., Dixie National Forest, Washington Co. Bids Apr. 17. CD 4/9.

Waterworks Equipment Co., 249 W. 2nd South St., Salt Lake City, Utah, CA **$160,000,** 126,596 ft. 4- to 10-in. c.i. pipe incl. valves and fittings, GRANGER, UTAH. Granter-Hunter Imprvt. Dist., c/o Lester O. Larson, 3752 So. 4400 West St., Granger, Utah, Bids Mar. 23. CD 3/12.

▲† **A. Teichert & Sons, Inc., Bressi & Bevanda Constr., Inc.,** Box 397, Baldwin Park, Calif., CA, **$2,456,386,** Rio Hondo Channel Improvement, Rivera, South Gate, Los Angeles Co., CIVENG-04-353-53-36, CALIFORNIA. U. S. Eng., 751 S. Figueroa St., Los Angeles, Calif. Bids Apr. 15, awarded Apr. 16. CD 4/21, under LB.

▲† **Fredericksen & Watson Constr. Co. and M. & K. Corp.,** 873 81 Ave., Oakland, Calif., CA, **$2,716,785** Sly Park Dam, Central Valley Proj., American River Div., El Dorado Co., Spec. DC 3888, CALIFORNIA. Bureau Reclamation, Dpt. Interior, Folsom, Calif. Bids Mar. 12, awarded Apr. 23. CD 3/23, under LB.

▲ **CALIFORNIA**—State Div. Hys., P. Wks. Bldg., Sacramento,

Ukropina-Polich-Kral, P.O. Box 105, San Gabriel, Calif., CA, **$1,215,180,** grading, paving, rein.-con. bridge 4 mi. between Yolo Causeway and Tower Bridge, Yolo Co. Bids Apr. 8, awarded Apr. 20. CD 4/16, under LB.

▲ **McNeil Constr. Co.,** 5858 Wilshire Blvd., Los Angeles, Calif., CA, **$1,900,000,** 300x400 ft. hangar, BURBANK, CALIF. Lockheed Aircraft Corp., 2555 Hollywood Way, Burbank, Calif.

Franks Dredging Co., Pier E, Berth 120, Long Beach, Calif., LB, **$567,099,** beach protection between Los Angeles County Flood Control Channel and Municipal Auditorium, LONG BEACH, CALIF. City, 205 W. Broadway, Long Beach, Calif. Bids Apr. 17. CD 4/7.

G. Vella Constr. Co., 1212 E. Huntington Dr., Duarte, Calif., LB, **$283,280,** sanitary sewers in Glen Ave., Altadena, C.I. 1256, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles. Bids Apr. 17. CD 3/27.

Oswald Bros., 366 E. 58 St., Los Angeles, Calif., LB, **$247,138,** imprv. 4.32 mi. Osage Ave., curbs, gutters, walks, Lawndale, C.I. 1356, LOS ANGELES, CALIF. Los Angeles Co., Hall of Records, Los Angeles. Bids Apr. 17. CD 3/2.

† **Trepte Constr. Co. and Gunther & Shirley,** 2001 Kettner Blvd., San Diego, Calif., CA, **$938,000** B.O.Q. and mess, Naval Air Station, NOY 74057, Spec. 35992, MIRAMAR, CALIF. Dpt. Navy, San Diego, Calif. Bids Mar. 10. CD 3/26.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Robert Johnson & Assocs.,** Idaho Falls, Idaho Day Labor, **$1,000,000,** SHOPPING CENTER, IDAHO FALLS, IDAHO.

DIG DEEP, LIFT and CARRY FAR!

Medium sized Sauerman Slackline Cableway, installed in 1928, has dug and moved many hundred thousand cubic yards of gravel from this pit to the screening plant with minimum expense for labor, power and repairs. Still good as new after 24 years' service, the machine continues to maintain its rated capacity.

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Slackline Cableway Excavators

Long-reaching Sauerman Slackline Cableway Excavators stretch out across water, bog, sludge, or deep pits to pick up a load practically at finger-tip command. Only one man—sitting in a comfortable operating station overlooking the work site—is required to dig, haul, lift, and dump in a perfectly controlled non-stop cycle. Need for sending men and equipment to soft surface areas or hazardous locations is eliminated. A single machine, operated from a safe position, does the complete job quickly and efficiently.

From an economy standpoint, the one-man Sauerman Slackline Cableway is unsurpassed in its field of use. Labor and equipment costs are held to a bare minimum. Simplicity of design, plus the fact that only the most expendable parts come in contact with the material handled results in exceptionally low maintenance costs. Power consumption, gasoline, diesel, or electric, is moderate. All these facts add up to greater efficiency, speed, and economy.

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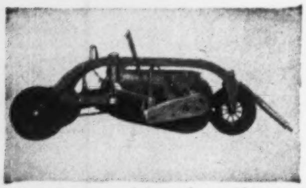
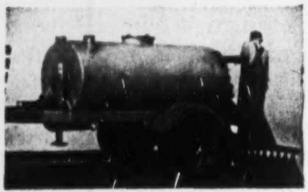
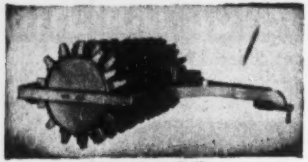

3 sweeper models, axle, engine or tractor powered.

Chip spreaders 8' to 12' width. Also asphaltic concrete spreaders.

Rapid Fire circulating heaters heat and unload large tanks of asphalt.


Rapidspray Maintenance Distributors. Also heaters for production melting of barreled asphalt.


Sheepsfoot Rollers 250 to 600 psi.

Pneumatic rollers 7 to 50 tons.

W. E. GRACE MFG. CO.
6015 S. Lamar Dallas, Tex.

Jensen Constr. Co., 548 W 2nd North St., Salt Lake City, Utah, CA. **$398,364**, general constr. for Beacon Heights Elementary SCHOOL, SALT LAKE CITY, UTAH. Bd. Educ., 4400 East 1st South St., Salt Lake City, Utah. Bids Mar. 31. CD 3/12.

L. H. Hoffman, 715 S.W. Columbia Blvd., Portland, Ore., CA, **$500,000**, general contract DEPARTMENT STORE, PASCO, WASH. Sears, Roebuck & Co., 2650 E. Olympic Blvd., Los Angeles, Calif. Bids Apr. 10. CD 4/21, under LB.

▲ **C. F. Braun & Co.**, 1000 S. Fremont Ave., Alhambra, Calif., CA, **$13,000,000**, ammonia PLANT 30-acre site at Imperial Hy. and Carolina Ave., BREA, CALIF. Amonico Co., c/o contractor.

▲ **Trousdale Constr. Co.**, 650 N. Sepulveda Blvd., Los Angeles, Calif., CA. Est. **$3,500,000**. RESIDENCES, APARTMENTS, SHOPPING CENTER and OFFICE on El Camio Real, between Burlingame and Millbrae, BURLINGAME, CALIF. Calview Realty Co., c/o contractor.

Sponseler & Sons, 1225 W. 58 St., Los Angeles, Calif., Owner Builds, **$595,000**, 66 stucco DWELLINGS, Broadmoor, Shadydale, Irwindale and Badello Aves., ÇOVINA, CALIF.

Westgrove Homestead Builders, 11791 Garden Grove Blvd., Garden Grove, Calif., CA, **$600,000**. 100 stucco DWELLINGS in Tract 1352, GARDEN GROVE, CALIF.

▲ **Manderbach Constr. Co.**, 1837 Victory Blvd., Glendale, Calif., CA, **$3,200,000**, MAINTENANCE BLDG., No. 410, FINAL ASSEMBLY BLDG. 420, PRODUCTION FLIGHT BLDG. 421, PALMDALE, CALIF. Lockheed Aircraft Corp., 2555 Hollywood Way, Burbank, Calif. Bids Dec. 23, awarded Apr. 20. CD 12/15.

John A. Alexander Co., Inc., 2620 Zoe Ave., Huntington Park, Calif., CA, **$500,000**, 217x690 rein.-con. tilt-up WAREHOUSE, VERNON, CALIF. Continental Can Co., 4633 Downey Rd., Vernon, Calif.

▲ **Development Engineers, Inc.**, 2357 W. Washington St., Los Angeles, Calif., CA, **$1,087,800**, 147 stucco DWELLINGS, Amistad, Brierfield, Danville and Woodford Sts., WHITTIER, CALIF. Los Angeles Development Co., 2357 W. Washington St., Los Angeles, Calif.

▲ **Luxury Unlimited, Inc.**, 9244 W. Olympic Blvd., Los Angeles, Calif., Owner Builds, **$1,281,000**. 122 stucco dwellings, Citrus Tree Rd., Grovedale Ave., Haldane St., etc. WHITTIER, CALIF.

CANADA

BIDS ASKED—HEAVY CONSTRUCTION

Ont., Timmins—RUNWAY—B.A. 5/13—Dpt. Transport Ottawa, hard surf. runway 4,000x200 ft., taxistrip, etc. airport. Plans deposit $25. CD 3/25.

BIDS ASKED—BUILDINGS

▲ **Que., Thetford Mines**—RAILWAY TERMINAL—B.A. 5/12—Quebec Central Ry. Co., L. A. Comeua, engr., 89 Wellington St. W. Sherbooke, railway terminal incl. 8.2 mi. new main line and yard, etc. **$1,000,000** A. M. Hand, c/o owner, engr. CD 3/31.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Lucerne Housing Ltd.**, 5333 Pare St., Montreal, Que., Owner Builds. **$4,000,000**, 127 BUNGALOWS and 10 APARTMENT blocks, Lucerne Rd., MONTREAL, QUE.

Bird Constr. Co. Ltd., 7 7 St., Regina, Sask., CA **$400,000**, first part concrete footings and basement work, DEPARTMENT STORE, REGINA, SASK. Simpson-Sears Ltd., 176 Yonge St., Toronto, Ont. Van Egmond & Storey, 1014 McCallum Hill Bldg., Regina, Sask., archts. CD 3/13, under Industrial Buildings.

Smith Brothers & Wilson Ltd., 104 Dominion Bank Bldg., Regina, Sask., CA, **$475,207**, 2 story, bsmnt., 40x130 ft., concrete, masonry memorial bldg., SAKATOON, SASK. University of Saskatchewan, Saskatoon, Sask. Bids Mar. 11. CD 2/18.

ALASKA

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Manson-Osberg Co.**, 1132 N. 128 St., Seattle, Wash. CA. **$2,629,360**, 2 tunnels 4,500 ft. long, rockfill concrete-lined dam, 30x77 ft. power house addn., etc. at Beaver Falls, KETCHIKAN, ALASKA. City, City Hall, Ketchikan, Alaska. Bids Apr. 14. CD 4/21, under LB.

Proposed Projects

WATER SUPPLY

Calif., Hemet—City, City Hall, **$550,000** bond election May 15, municipal water system, incl. wells, pumping plants, reservoirs and distr. mains. S. R. Lester Boyle, Spurgeon Bldg., Santa Ana, consult. engr.

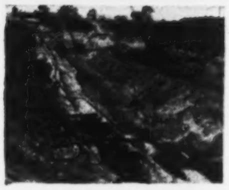
▲ **Calif., Whittier**—City, City Hall, water system imprvs. and addns. **$2,380,000**. Koebig & Koebig, 3142 Wilshire Blvd., Los Angeles, consult. engrs. CD 4/20.

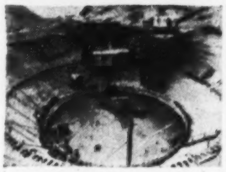
▲ **Ind., Anderson**—City, J. H. Burton, Bd. Wks., water distr. sys modernization, addns. **$1,000,000**. Martin Milling, city engr. C. W. Cole & Son, 220 W. La Salle Ave., South Bend, consult. engrs. CD 2/11.

Okla., Pauls Valley—City, voted bonds Apr. 14, Washington Creek water supply. **$650,000**. Lee M. Bush & Co., Colcord Bldg., Oklahoma City, consult. engrs. CD 3/24.

(Continued on page 92)

WET JOBS


Whether it's HEAVY CONSTRUCTION


BUILDINGS

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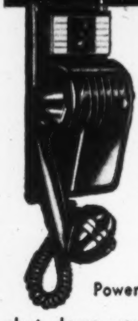
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they couldn't
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or cut!

This immensely heavy crane rolled repeatedly over the U.S. Royal Cord Air Hose in left foreground. Hose remained unharmed, even though ground was paved with sharp shells.

In the 14 months it took to build a large aluminum plant in Texas, U.S. Royal Cord Air Hose took a beating which amazed construction men. 50-ton cranes on tractors, trucks carrying steel girders or gravel, ran over it again and again. *No cribbing was used.* The pavement was surfaced with very sharp and abrasive oyster and clam shells. Yet the hose suffered no damage, not even when carrying 125 pounds of water closed off at the end! Weathering and salt air had no effect on it. What's more, every foot of the hose is now being used in the finished plant.

If there ever was a hose you can thoroughly abuse, U.S. Royal Cord is it. You don't have to waste time and money cribbing it. Move it about at will. It's the only cord hose built with true tire construction.

This is the sort of endurance you can count on in any United States Rubber Company product. There are 25 "U.S." District Sales Offices, staffed with engineers to serve you. Or write to address below.

Constant stream of heavily loaded vehicles at considerable speed roll over the U.S. Royal Cord Air Hose on hard packed roadway. Hose suffered no damage.

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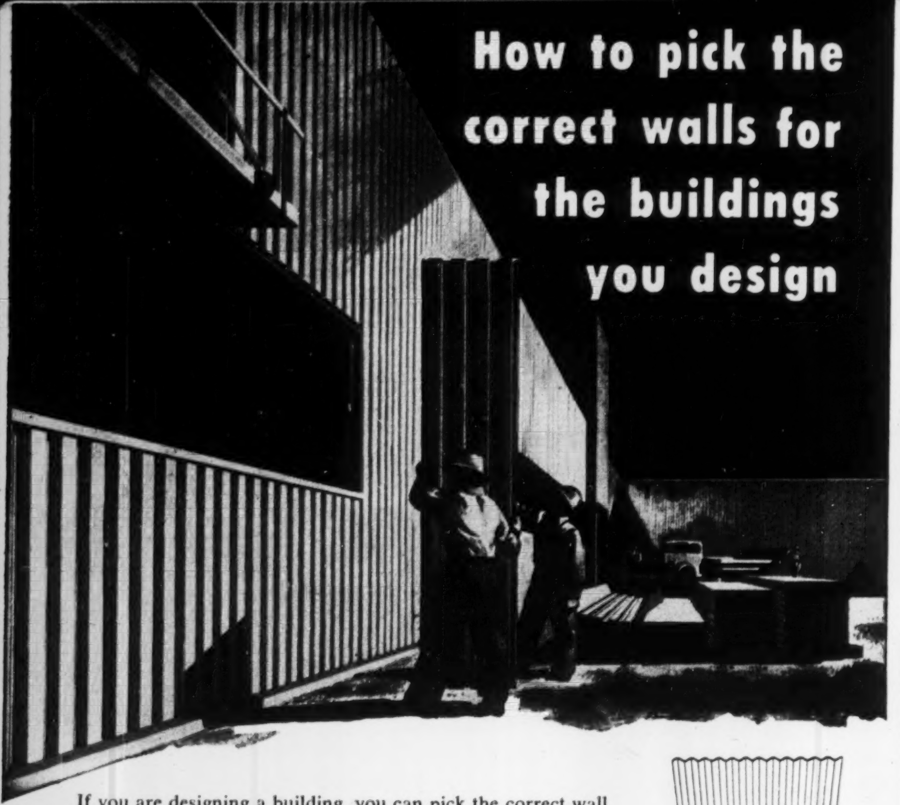

How to pick the correct walls for the buildings you design

If you are designing a building, you can pick the correct wall by matching the function of the structure against the Robertson Q-Wall products shown here. These modern walls save construction time and money and give many extra years of maintenance-free service. They can be demounted and reused to keep pace with plant expansion. Q-Walls weigh less than 1/16th of the equivalent masonry wall.

1. Galbestos. Ideal for standard industrial plants. Galbestos has the highest resistance to corrosion and weather of any protected steel siding or roofing you can specify. For mill buildings, warehouses, or any other industrial structures that do not require full insulation.

2. Insulated Galbestos. Perfect for a dry-occupancy industrial building that must be heated. Non-combustible insulation is installed on the job by the Robertson *Top-Speed* fastening method, and Galbestos applied over. Its heat transmission factor (U-Value) is 0.16 BTU per sq. ft. per hr. per degree of temperature difference, F.

3. G-Type Q-Panels. This is a *field-assembled* wall made up of an interior steel vapor barrier, a layer of incombustible insulation, and an exterior of tough, long-lasting Galbestos. The proper combination for an industrial situation which requires both temperature and humidity control. U-Value—0.16 BTU.

4. Q-Panels. A quickly erected, *factory-assembled* panel combining strong, dry, lightweight construction with architectural beauty. Well adapted to air-conditioned buildings of all sizes, and obtainable with various exterior surfaces, either metal coated steel, stainless or aluminum. U-Value—0.16 BTU.

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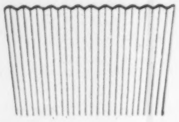

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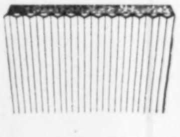

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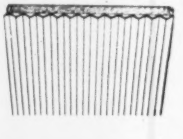

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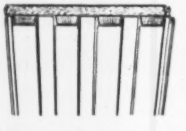

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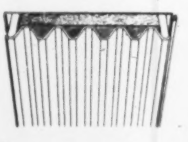

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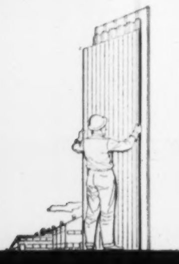


(Continued from page 90)

Va., Martinsville—City, City Hall, voted bonds **Apr. 14.** WW imprvs. **$620,000.** CD 2/17.

SEWERS, WASTE DISPOSAL

▲ **Calif., Sunnyvale**—City, City Hall, defeated **$1,500,000** bonds, sewage treatment plant, etc. CD 1/30.

▲ **Mich., Pontiac**—Oakland Co., Ralph A. Main, city drain comr., Lafayette St., drainage proj., proposed 12-town drain and storm sewer constr. to serve Royal Oak, Birmingham, Clawson, Ferndale, Berkley, Pleasant Ridge, Huntington Woods, Troy, Oak Park, Southfield, etc. **$12,500,000.** Hubbell, Roth & Clark, Inc., 2640 Buhl Bldg., Detroit, consult. engr. CD 2/17.

Pa., Neville Island (Br. Pittsburgh)—Comrs. Neville Twp., Municipal Bldg., 3 and Grand Sts., Neville Island, Pittsburgh, sewage treatment plant and collection sys. **$800,000.** Capitol Eng. Co., Dillsburg, engr. CD 2/16/51.

BRIDGES

▲ **MASSACHUSETTS**—Commonwealth of Mass., Dpt. P. Wks., 100 Nashua St., Boston,

Salem—overpass to eliminate 2 grade crossings over Boston & Maine R.R., replacement present railroad station, **$8,000,000.** Cost to be shared by Essex County, City of Salem, State of Mass. and B. & M. R.R. CD **6/10/49.**

▲ **Wash., Tacoma**—City, City Hall, overhead structure to carry traffic from 14 and A Sts. to Puyallup Ave. **$2,500,000.** D. E. Morris, city engr. CD 8/12/48.

STREETS AND ROADS

Kan., Coffeyville—City, voted **$500,000** bonds street imprvs.

Mich., Pontiac—City, Ada R. Evans, clk., street paving, grading, drainage, structures, c.conc. curb and gutter, on eight streets. **$675,000.** Lewis M. Wrenn, City Hall, city engr.

▲ **Mo., St. Joseph**—Bd. P. Wks., City Hall; voted **$1,260,000** bonds Apr. 14, repaving streets, parkway and blvd. CD 3/25.

▲ **Wash., Tacoma**—City, City Hall, imprv. Yakima Ave. from S. 99 St. to Division Ave. **$2,300,000.**

AIRPORTS

▲ **Ont., Ottawa**—HANGAR, etc.—Dpt. National Defence AIR, Govt. of Canada, Administrative Offices, Ottawa, 3 story, 425x300 ft., hangar with cantilevered roof spanning out on both sides of central concrete workshop, Uplands Airport, Uplands. **$3,500,000.** Defence Constr., Ltd., 70 Lyon St., engrs.

LATIN AMERICA

▲ **Mexico,** Torreon-Sroa. de la Defensa Nacional, plans military city, **$4,600,000.**

PUBLIC BUILDINGS

▲ Calif., **Hanford**—SCHOOL—Hanford Union High School District, Hanford **$1,500,000** bond election May 15, high school addn.

▲ **Colo., Greeley**—SCHOOL EXPANSION—Bd. Educ., Greeley, defeated **$1,600,000** bonds, school expansion. CD 2/24.

▲ **Ga., Dalton**—HOSPITAL—City and Whitfield Co. plans by Abreau & Robeson, 141 Walton St. N. W., Atlanta, hospital. **$1,250,000.** CD 4/15.

▲ **Ia., Anamosa**—POWER PLANT—State Executive Council, Capitol Bldg., Des Moines, power plant at State Reformitory, **$1,000,000.**

▲ **Ia., Mount Pleasant**—HOSPITAL—State Executive Council, Capitol Bldg., Des Moines, state hospital addn. **$1,500,000.**

▲ **Ia., Woodward**—DORMITORIES—State Executive Council, Capitol Bldg., Des Moines, two dormitories at Woodward State School for feeble minded children. **$1,000,000.**

Kan., Lawrence—SCHOOLS—Bd. Educ. voted **$917,000** bonds Apr. 7., 2 elementary schools, remodeling 2 schools. CD 6/3/49.

▲ **Kan., Wichita**—SCHOOLS—Bd. Educ., voted **$6,490,000** bonds Apr. 7, schools. CD 3/26.

▲ **Me., Limestone**—SCHOOL—Housing & Home Finance Agency, 73 Tremont St., Boston, Mass., elementary school at Limestone Air Force Base, **$1,500,000.**

Mass., Dedham—SCHOOL—Town, E. J. Keelam, Jr., chn. School Bldg. Comn., c/o Supt. Schools, Bryant St., Junior High School near High School, East St. **$800,000.**

▲ **Mass., North Adams**—AUDITORIUM and GYMNASIUM—State, Dpt. Educ., 200 Newbury St., Boston, science auditorium and gymnasium bldg., State Teachers College. **$1,250,000.**

Mass., Springfield—SCHOOL—City, P. Bldgs. Dpt., City Hall. Junior High School, Bradley and Wilbraham Rds., **$850,000.**

▲ **Mass., Westfield**—DORMITORY and ACADEMIC BLDGS.—State, Dpt. Educ., 200 Newbury St., Boston, plans by Abbott Assoc., Inc., 13 State St., Boston, dormitory and academic bldgs., State Teachers College, **$3,000,000.**

▲ **Mich., Dearborn**—SCHOOL—City, Bd. Educ., 5757 Neckel St., plans by Jahr-Anderson & Assoc., 15011 Michigan Ave., brick, steel, concrete, Edsel Ford High School, **$4,500,000.** CD 12/28/50.

▲ **Mo., Ladue (St. Louis 24 P.O.)**—SCHOOL—Ladue School Dist., Bd. Educ., Joel Y. Lund, pres., 1201 S. Warson Rd., voted **$1,950,000** bonds schools, addns.

▲ **Pa., Phila**—SCHOOLS—Bd. Educ., 21 and Winter Sts., plans by Borie & Smith, 1531 Locust St., girls high school, **$7,000,000;** plans by Herman A Schuk, Jr., 5600 Greene St., Sheppard School rehabilitation, **$600,000.**

▲ **Tex., Harlingen**—HOSPITAL—Bd. for Texas State Hospitals & Special Schools, 45 and Lamar Sts., Austin, plans by R. Newell Waters, Weslaco, 198,000 sq. ft., 600-bed State Tuberculosis Hospital, 15 bldgs. **$2,700,000.** Francis J. Niven, Revoire & Poole, 2520 Huldy St., Houston, consult. engrs. Walter C. Moore, c/o owner, superv. archt. CD 11/18.

▲ **Tex., Houston**—ENGINEERING, etc.—University of Houston, 3800 Cullen Blvd., plans by Alfred C. Finn, 1005 Bankers Mortgage Bldg., engineering bldg. **$3,000,000;** student center, **$2,000,000.** Robert J. Cummins & Reginald F. Taylor, Bankers Mortgage Bldg., consult. engrs. CD 3/31/52.

Tenn., Lebanon—HIGH SCHOOL—Wilson Co. Bd. Educ., Lebanon, high school. **$800,000.**

▲ **Alta., Edmonton**—CITY HALL—City, Municipal Bldg. city hall, 100 St. between 102 and 103 Aves. **$2,000,000.** CD 5/8/46.

B. C., Vancouver—REHABILITATION CENTER—Provincial Dpt. P. Wks., Parliament Bldgs., Victoria, B. C., plans by A. C. Smith & Assoc., 413 Granville St., 2 story, bsmnt., rein.-con. T-shaped, 60x200 ft. and 50x100 ft., rehabilitation center, incl. gymnasium and therapeutic pool, 37 Ave. and Heather St. **$950,000.** N. M. McCallum, c/o owner, ch. engr.

▲ **Ont., Port Arthur**—HOSPITAL WING—Dpt. P. Wks., 36 Adelaide St. E., Toronto, hospital wing. **$2,200,000.** CD 2/23/50.

▲ **Ont., Port Arthur**—REGISTRY—Dpt. P. Wks., 36 Adelaide St. E., Toronto, registry bldg. for Attorney General's Dept. **$1,000,000.** CD 3/1/43.

▲ **Que., Petite Riviere**—HOUSES—Owner, c/o Mayor Roland Milot, Petite Riviere, 300 houses, **$2,800,000.**

COMMERCIAL BUILDINGS

▲ **Colo., Westminister**—SHOPPING CENTER—V. J. Dunton Realty Co., Midland Savings Bldg. Denver, plans by C. Howard Miller, consult. engr. and archt., 8820 W. 68 Ave. Arvada, 1 story, 45,000 sq. ft. shopping center, 72 and Federal Blvd. **$1,000,000.**

▲ **Colo., Westminister**—SHOPPING CENTER—Ollie Forsberg & Bryan United, 2024 Kingston St., Aurora, 1 story, concrete, steel shopping center between W. 76 and 77 Aves. and Lowell and Newton Sts. **$2,000,000.**

▲ **Fla., Miami Beach**—HOTEL—Di Lido Hotel, c/o Melvin Grossman, archt., 311 Lincoln Rd., hotel, Approx. **$1,000,000.**

▲ **Ill., Melrose Park**—APARTMENTS, etc.—Norman K. Winston-Muss, 22W. 48 St., New York, N. Y., 3000 unit apartment, North Ave. at 14 East to Des Plaines River on 240 acre tract, also shopping center, **$50,000,000.**

▲ **Md., Landover**—SHOPPING CENTER—Corporation to be formed by Morris Cafritz, 1404 K St., N. W., Wash., D. C., plans by Leroy Werner, 1404 K St. N. W., Wash., D. C., shopping center at Hugh O'Neill estate near intersection of Defense Hy. and Landover Rd. **$2,000,000.**

▲ **Mo., Kansas City**—HOTEL—Trianon Hotel Co., c/o Barney Allis, pres., 12 and Baltimore Sts., plans by Neville, Sharp & Simon, 25 E. 12 St., 12 story addn. to Hotel Muehlebach (Muehlebach Tower) connecting with municipal auditorium parking facilities, underground. **$2,000,000.**

▲ **Mo., St. Louis**—HOSPITAL—The Jewish Hospital of St. Louis, c/o S. C. Sachs, 5540 W. Parks Ave., Zone 10, plans by Jamieson, Spearl, Hammond & Grolock, 1696 Arade Bldg., 912 Olive St., Zone 1, 1 story, ground floor to 6 story, ground floor, brick, rein.-con., steel Jewish Hospital addns. incl. addns. front and rear present bldg., 216 S. Kingshighway Blvd., **$4,000,000.**

▲ **N. Y., Brooklyn**—APARTMENT—W. I. C. Co., 16 Court St., Zone 2, plans by Lama, Proskauer & Prober, 383 Pearl St., Zone 1, 6 story apartment, 130-152 72 St. **$1,000,000.**

N. Y., Mt. Vernon—APARTMENT—Nathan Goodstein, c/o Lawrence M. Rothman, archt., 332 E. 149 St., New York, Zone 51, 6 story apartment for 66 families, 555 Locust St. **$400,000.**

▲ **N. Y., New York**—APARTMENT—Rachel Ancowitz, 202 E. 179 St., New York, Zone 57, plans by S. J. Kessler & Sons, 118 E. 28 St., Zone 16; 14 story apartment, 256 St. between Arlington and Independence Aves. **$1,340,000.**

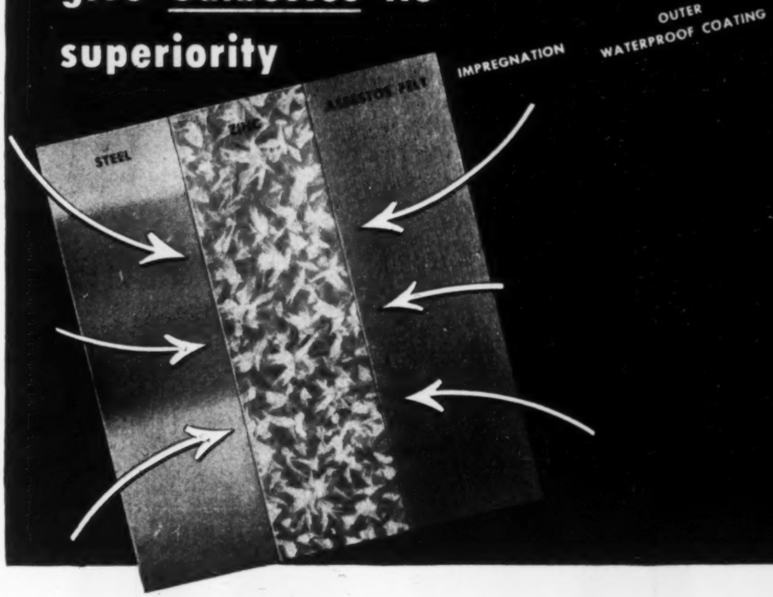
▲ **N. Y., New York**—OFFICE—Manufacturers Trust Co., 55 Broad St., Zone 4, plans by Skidmore, Owings & Merrill, 575 Madison Ave., Zone 22, office, 508-14 Fifth Ave. **$2,200,000.**

▲ **N. Y., Niskayuna**—SHOPPING CENTER—E. F. Murray, I. L. Simon, Stanford Golf Club, Stop 2, Albany Rd., Schenectady, 80-100 stores shopping center, 8,000-10,000 car parking area.

▲ **N. Y., White Plains**—HOUSES—S. Solon Cohen, Burkewood Rd., 300 houses on 94-acre tract on east side of Mamaroneck Ave. between Ridgeway and Rosedale Aves. to be called Gedney Meadows. **$9,000,000.**

▲ **O., Warren**—HOSPITAL—Bd. Trustees St. Joseph Hospital, Warren, hospital addn. **$1,460,000.** CD 5/1/51.

How molten metal helps give Galbestos its superiority



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First, the steel sheet is pickled . . . then given a coating of molten zinc. Asbestos felt is then pressed on so that as the molten metal hardens in cooling it grips the felt fibers in absolute bond. The asbestos is then impregnated with a special asphaltic compound and, finally, given a tough weatherproof coating. Galbestos can be furnished flat or in the 3 well-known corrugations: Standard, Mansard, and V-Beam. The resultant material is so durable, it may be sheared, bent, rolled, crimped and riveted in the field as easily as ordinary unprotected steel. It will withstand the greatest possible extremes in weather temperatures without deterioration, and will actually retard fire better than naked steel. For an industrial roofing or siding that requires no maintenance under the most severe corrosive conditions, specify Galbestos.

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Not Fragile. Galbestos' strong steel core sheet guarantees against breakage—during shipment or during erection.

Resists Climatic Extremes. Galbestos is not subject to damage either by tropic or frigid temperatures. Its coatings will not run under broiling sun or crack or spall in sub-zero weather.

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—15″	9.85	8.95
—18″	11.50	10.50
—24″	15.00	13.50
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1x2—12″	6.15	5.60
—15″	6.60	6.00
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—24″	9.00	8.00
—36″	12.00	11.00

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▲ **Pa., Greensburg**—SHOPPING CENTER—**Union Real Estate Co., Fourth Ave., Pittsburgh, plans by Hyman Rosenberg,** 449 Fourth Ave., Pittsburgh, 1 story brick, block shopping center, **$2,000,000.**

▲ **Tenn., Memphis**—APARTMENT—Joyner-Heard Realty Co., Commerce Title Bldg., **three 12-story apartments. $1,500,000.**

▲ **Tex., Longview**—HOTEL—Carl Johnson, G. Fulcher & Assoc., 1010 W. 3rd. St., Austin, ultra-modern hotel, on downtown site. **$1,000,000.**

▲ **Ont., Ottawa**—HOTEL—Lord Elgin Hotel Co., Elgin St., structural steel, brick, stone hotel addn., Laurier Ave. W. **$2,000,000.**

Que., Montreal—ORPHANAGE—St. Joseph Italian Orphanage 1207 St. Andrew St., plans by G. Gagnier 1449 Crescent St., 3 story, 56 x 173 ft. orphanage, Belanger St. **$750,000.**

INDUSTRIAL BUILDINGS

▲ **Fla., Fernandina Beach**—MILL—Container Corp. of America, 38 S. Dearborn St., Chicago 3, Ill., plans by Morton L. Pereira & Assocs., 100 W. Monroe St., Chicago 3, Ill., paper board mill, **$1,000,000.** CD 4/18/52.

▲ **Ky., Louisville** — PLANT — Ford Motor Co., 3000 Schaefer St., Dearborn, Mich., plans by Albert Kahn Associated Architects & Engineers, Inc., 345 New Center Bldg., Detroit, Mich., plant, Strawberry Lane, **$4,000,000,** Grading, drainage and railroad awarded to Codell Co., Winchester, Ky. CD 4/10.

▲ **Mich., Livonia**—PLANT OFFICE and POWER HOUSE—Chevrolet Motor Div., General Motors Corp., 3044 W. Grand Blvd., Detroit, 750,000 sq.ft. spring and bumper plant, office, power house, incl. parking lot and cafeteria, Eckles Rd. at Armhein Rd., Wayne Co. Structural steel contract awarded to R. C. Mahon Co., 6565 E. Eight Mile Rd., Detroit, Mich.

N. J., Vineland—MILL—John M. Patterson, 566 N. West Ave., Industrial mill bldgs. **$900,000.**

▲ **N. Y., New York**—FACTORY—Frank G. Shattuck Co., 58 W. 23 St., Zone 10, plans by Walter M. Cory, 36 W. 40 St., Zone 18, 8 story addn. to Schrafft Stores factory and processing bldg., 52-54 W. 23 St. **$1,000,000.**

▲ **Pa., Erie**—ADMINISTRATION—Pennsylvania Electric Co., Johnstown, plans by Lacy, Atherton & Davis, Front and Keller Sts., Harrisburg, admin. bldg., French and Evans Rds. **$1,500,000. CD 12/30.**

▲ **Tex., Dallas**—WAREHOUSING, etc.—Winfield Morten, c/o Morten Realty Co. & Assoc., 9001 Denton Dr., Houston, wareshousing, **$1,000,000;** shops **$500,000;** factory, **$300,000.**

▲ **Tex., Freeport**—PLANT—Dow Chemical Co., Freeport, polyethylene plant. **$11,000,000.** CD 4/3.

▲ **Ont., Trenton**—PLANT—Pyrotenax of Canada Ltd., 77 York St., Toronto, plans by A. G. Facey, 991 Bay St., Toronto, jet aircraft components plant exten. **$1,000,000.** Edgar A. Cross, 991 Bay St., Toronto, consult. engr.

▲ **Que., Contrecoeur** — SHIPPING TERMINAL, etc. — Quebec, Iron & Titanium Corp., 1501 Drummond St., Montreal, Que., and M. A. Hanna Co., Leader Bldg., Cleveland, O., U. S. A., shipping terminal, wharf roads and storage facilities, St. Lawrence River, **$5,000,000.** CD 3/26/52.

UNCLASSIFIED

▲ **Calif., Arcadia**—GRANDSTAND—**Los Angeles Turf** Club Inc., Santa Anita Park, plans by Roland E. Coate, 1445 E. San Marino Ave., San Marine, steel, concrete grandstand exten. **$1,300,000.**

▲ **Mass., Cambridge**—WAR MEMORIAL BLDG.—City, City Mgr's Office, City Hall, plans by Richard Shaw, 25 Huntington Ave., Boston, War Memorial bldg. incl. gymnasium, auditorium, swimming pool. **$1,153,000.** CD 10/23/50.

▲ **Mo., St. Joseph**—COLISEUM—**Bd. P. Wks.,** City Hall, defeated **$1,433,000** bonds Apr. 14, municipal coliseum. CD 3/25.

▲ **Mo., St. Joseph**—LIGHTING SYSTEM—Bd. P. Wks., City Hall, voted **$1,000,000** bonds Apr. 14, street and boulevard lighting sys. CD 3/25.

Okla., Tulsa—TELEVISION STATION—Arthur R. Olson, Box 2680, television station. **$700,000.** George P. Adair, 1610 "I" St., N.W. Wash. 6, D. C., consult. engr.

Okla., Tulsa—TELEVISION STATION—Tulsa Television Co., 315 S. Boulder St., television station. **$500,000.** Craven, Lohnes & Culver, Munsey Bldg., Wash. 4, D. C., consult. engrs. CD 9/8/49.

▲ **Pa., Forest Hills**—TELEVISION STATION—WCAE, Inc., 550 Grant St., Pittsburgh, television station. **$1,500,000.** A. Earl Cullum, Jr., Highland Park Village, Dallas 5, Tex., consult. engr.

Pa., Scranton—TELEVISION STATION—Electric City Telecasting Co., 149 Penn Ave., television station. **$500,000.** James C. McNary, Natl. Press Bldg., Wash. 4, D. C., consulut. engr.

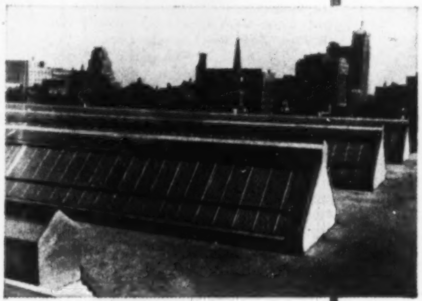
▲ **Texas**—RAILWAY TRACK LINK—Atcheson, Topeka & Santa Fe Ry. Sys., T. A. Blair, ch. engr. 80 E. Jackson Blvd., Chicago 4, Ill, 38 mi. railway track link from Sanger (Denton Co.) to Addison (Dallas Co.), **$2,500,000**

Tex., Houston—STREET LIGHTING—City, City Hall, 900 Brazos St., constr. system of mercury-vapor type street lighting. **$750,000. W. E. White, city engr.**

▲ **Wash., Tacoma**—STREET LIGHTING SYSTEMS—**City, City Hall, street lighting systems on main arterials. $1,500,000. D. E. Morris, city engr.**

lighten your overhead

with **PENNSYLVANIA ORIGINAL CORRUGATED WIRE GLASS**



When you specify Original Pennsylvania Corrugated Wire Glass, you build in vital benefits that will see your building through years of function, handsomeness and low-cost maintenance.

- You build in Efficient Lighting . . softly diffused daylight in either white or heat absorbing actinic glass, eliminating harsh shadows, glare
- You build in Low Maintenance . . . a skylight with nothing to corrode, nothing to replace, nothing to re-paint
- You build in Structural Strength . . . heavy, corrugated glass, with wire encased, standing firm under the most punishing machinery vibrations

Original Pennsylvania Corrugated Wire Glass Construction is a complete unit of glass and sheet metal parts. Standard width sheets measure 27¾" Installation is made without supplementary frames—Corrugated Wire Glass is applied directly on wood, steel or concrete.

Write to Dep't. E53 for your FREE copy of Catalog 16A for illustrated suggestions on the use of Original Pennsylvania Corrugated Wire Glass in Skylights and Sawtooth Constructions. Or—send us a rough sketch of your problem. Our engineers will gladly suggest a solution.

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Representatives in Principal Cities

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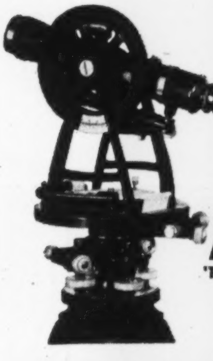
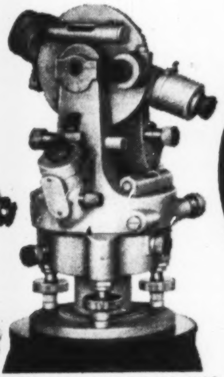
Preferred for Federal and Public Works, by General Engineering, Railroads and Road-Building Engineers.





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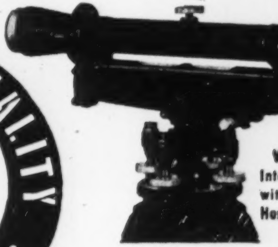

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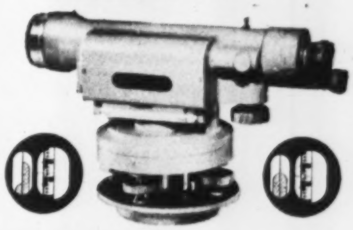

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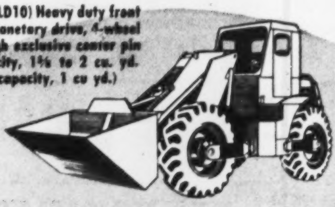
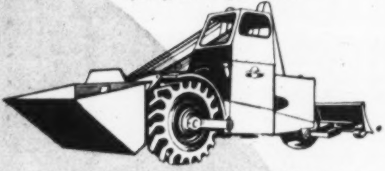
MIXERMOBILE
MIXERMOBILE MANUFACTURERS

Production Line

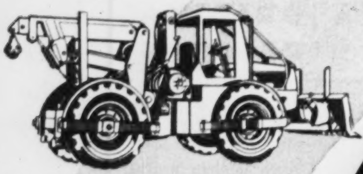
SCOOPMOBILE (Model LD10) Heavy duty front end loader. 4-wheel planetary drive, 4-wheel power steering through exclusive center pin hinge coupling. Capacity, 1⅔ to 2 cu. yd. (Smaller Model LD5—capacity, 1 cu yd.)



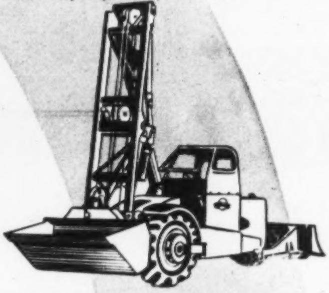
DUO-WAY SCOOP. Dozer at one end, scoop at other. Shovels, loads, transports, dozes, backfills. Four speeds either direction. (Model DS2H—capacity, 1 cu yd. struck; Model DS3H—capacity, 1½ cu. yd. struck).



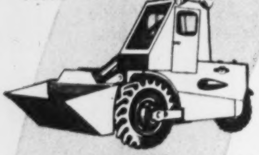
LOGGERMOBILE. (Model LG10) 4-wheel drive, 4-wheel power steerling. Hydraulically operated live arch and telescoping boom. Planetary drive winch. All purpose logger—skids, arch logs, loads.



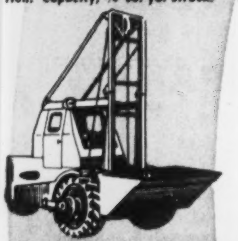
DUO-WAY SCOOP (Model DS2B) Scoop at one end, dozer at other. Side-saddle operator position. Upper track folds hydraulically for clearance Capacity, 1 cu. yd. struck.



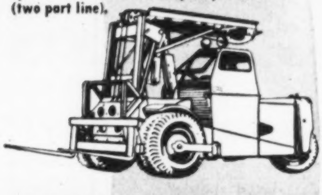
SCOOPMOBILE (Model H) Shovels, loads, transports all types of bulk materials. Four speeds either direction. Capacity, ¾ cu. yd. struck.



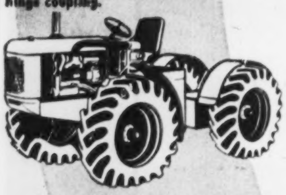
SCOOPMOBILE (Model C) Scoops, hoists, stacks and loads. Four speeds either direction. Capacity, ¾ cu. yd. struck.



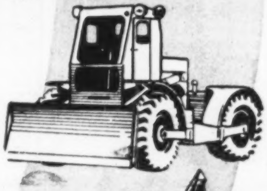
DUO-WAY LIFT (Model DL2B) Transporter and heavy-duty lift truck with folding track. Four speeds either direction. Capacity 12,000 lbs. (two part line).



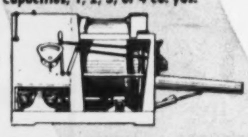
TRACTORMOBILE (Model TR10) Heavy-duty, general utility tractor. 4-wheel drive, 4-wheel power steering through exclusive center pin hinge coupling.



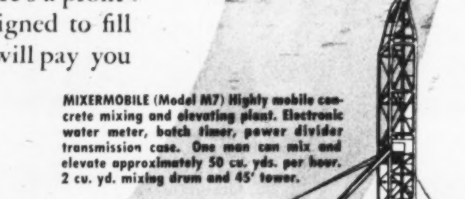
DOZERMOBILE (Model DM1) Powerful, high-production tractor-dozer. 4-wheel drive, 4-wheel power steering through exclusive center pin hinge coupling.



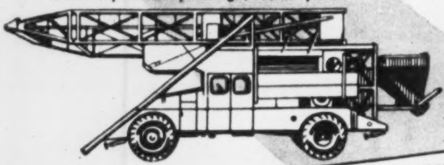
SEMI-STATIONARY MIXERS. Concrete mixing plants. Electronic water metering, hydraulic controls. Capacities, 1, 2, 3, or 4 cu. yds.



MIXERMOBILE (Model M7) Highly mobile concrete mixing and elevating plant. Electronic water meter, batch timer, power divider transmission case. One man can mix and elevate approximately 50 cu. yds. per hour. 2 cu. yd. mixing drum and 45' tower.



TOWERMOBILE. Mobile truck-mounted hoisting tower. 35-ft. open-faced tower raised and lowered hydraulically. Storage, 7½ cu. yd.



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Bids—Low Bids—Contracts—Second Section

NEW ENGLAND

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 11 Connecticut
STREETS AND ROADS
May 11 Connecticut

BIDS ASKED—BUILDINGS

▲ **Mass., Needham**—SCHOOL—B.A. 5/14—Town, D. A. Newman, supt. Schools, 1330 Highland Ave., Senior High School addn., alterations, Webster St. $1,500,000. Plans deposit $100, refundable. Kilham, Hopkins, Fordyce, 444 N. Michigan Ave., Chicago, Ill., archts. CD 3/25/52.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **MAINE**—State Hy. Comn., State House, Augusta,
Gil Wyner Co., Inc., 12 Newland St., Malden, Mass. CA. **$1,424,908.** b.-conc. road, grade separation structures 0.732 mi. F.A. Projs. Nos. UI-01-1 (3) and UGI 01-1 (4) C, Portland. CD 4/28, under LB.

▲ **RHODE ISLAND**—State and Providence Plantations, F. A. Adams, purch. agt., State House, Providence,
Whaling City Dredge & Dock Corp., Buell St., Groton, Conn., CA. **$1,482,365,** est. $1,450,000. Bridge, at Tiverton, Newport Co. Bids Mar. 18. CD 3/24, under LB.

MIDDLE ATLANTIC

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 14, 19 New Jersey
STREETS AND ROADS
May 14, 18 New Jersey May 21 New York

SOON LETS CONTRACT—BUILDINGS

▲ **PA., Pittsburgh**—APARTMENTS—Belmar Gardens, Inc., 306 Triangle Bldg., soon lets contract 18 bldgs. (118 families), 2 story, bsmnt., brick, ten 30x104 ft., eight 30x144 ft. $1,500,000. Irwin Gerberg & Pancani, 11 Commerce St., Newark, N. J., archts.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **NEW JERSEY**—N. J. Hy. Auth., State Hy. Dpt. Office Bldg., 1035 Parkway Ave., Trenton,
Franklin Contg. Co., Alleghany Ave., Newark, N. J., LB, **$1,945,363,** Garden State Parkway, Contract No. 37, Section 7, bridges at relocated Cheesequake Park Rd; New York & Long Branch R. R. (North); relocated Old Matawan Rd. over Parkway relocated Old Matawan Rd. over New York & Long Branch R. R.; Central R. R. of N. J. (Seashore Branch) Lloyd Rd.; New York and Long Branch R. R. (South) in Twps. of Matawan and Raritan, Monmouth Co. Bids Apr. 23. CD 4/8.

▲ **PENNSYLVANIA**—State Hy. Dpt., 506 N. Office Bldg., Harrisburg,
H. J. Williams Co., Sumner St. and W. Md. R. R., York, Pa., LB **$3,570,540.** 31,320 ft. divided hy. of rein.-con. 24 ft. wide each side divisor, TR. U. S. 111, York Co.;
Lycoming Constr. Co., 127 Susquehanna St., Williamsport, Pa., LB **$92,670,** c. conc. paving 920 ft., 24 ft. wide, one I-beam bridge, U. S. 15, Lycoming Co.;
Donald B. Stabler, 635 Lucknow Lane, Harrisburg, Pa. LB **$609,512,** crushed stone base with bit. surf. 30,773 ft. T. R. 174, 641, Cumberland Co. Bids Apr. 24. CD 4/8.

▲ **PENNSYLVANIA**—Pennsylvania Turnpike Comn., 11 N. Fourth St., Harrisburg,
James D. Morrissey, Inc., 9119 Frankford Ave., Phila., Pa. LB **$5,385,322,** 4.16 mi. Upper Dublin and Upper Moreland Twps., Montgomery Co.; 3.44 mi. Upper Moreland and Low Moreland Twps. and Upper Southampton and Lower Southampton Twps., Bucks Co. Bids Apr. 28. CD 4/3.

▲ **Bass Eng. & Constr. Co.,** 215 Birmingham Theatre Bldg., Birmingham, Mich., CA. **$1,106,880,** West Sewage and Waste Treatment Plant and intercepting sewers; CA **$1,607,510,** Central Sewage Treatment Plant and intercepting sewers, WILLIAMSPORT, PA. Williamsport Sanitary Auth., 253 W. 4 St., Williamsport, Pa. Bids Apr. 15. CD 4/22, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Sam Lefrak,** 97-27, 64 Rd., Forest Hills, N. Y. Owner Builds. **$1,250,000.** 6 story APARTMENT, Clyde St. east of 67 Ave., FOREST HILLS, N. Y. CD 4/2.

▲ **Manlio Vidonni,** c/o Alwin Cassens, archt., 145 S. Franklin Ave., Valley Stream, N. Y. Owner Builds. **$1,500,000.** 150 HOUSES on tract on Woodbury Rd. west of South Oyster Bay Rd., HICKSVILLE, N. Y.

▲ **Delphi Constr. Co., Inc.,** 500 Zerega Ave., New York 72, N. Y., CA **$1,284,780,** general contract KITCHEN, BAKERY, STOREHOUSE BLDG. Bldg. 106, Wards Island State Hospital, NEW YORK, N. Y. Bureau Contracts & Accounts, The Governor Alfred E. Smith State Office Bldg., Albany, N. Y. Bids Mar. 26. **CD 4/1, under LB.**

▲ **Hillside Terrace, Inc.,** c/o A. H. Salkowitz, archt., 37-60 82 St., Jackson Heights, N. Y. Owner Builds. **$2,000,000.** 200 HOUSES, on tract, South Oyster Bay Rd and Jericho Turnpike, SYOSSET, N. Y

▲ **Clearmeadow Lawns Homes,** c/o John W. Burton & Assoc., archts., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$5,000,000.** 300 HOUSES on tract on South Oyster Bay Rd. between Northern State Parkway and Jericho Turnpike, SYOSSET, N. Y.

▲ **Orchard Estates Homes,** c/o J. Herbert Burmeister, archt. 89-30 161 St., Jamaica, N. Y. Owner Builds. **$1,500,000.** 100 HOUSES on tract at Jericho Turnpike and Juniper Rd., WESTBURY, N. Y.

▲ **Newport Terrace Homes,** c/o John W. Burton, archt., 163-18 Jamaica Ave., Jamaica, N. Y. Owner Builds. **$1,300,000.** 84 HOUSES on 22 acre tract, 24 Rd. and 151 St., WHITESTONE, N. Y.

SOUTH

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 15 Alabama May 19 Virginia
STREETS AND ROADS
May 15 Alabama May 19 Virginia

▲ **Tenn., Nashville**—B.A. 6/1—City, City Hall, (first unit) sanitary sewer project, East Nashville Interceptor Sewer, 6 regulator stations, 2 siphons under Cumberland River. $1,500,000. Hart, Freeland & Roberts, 3rd Natl. Bank Bldg., and Polk, Powell & Hendon, Stallings Bldg., Birmingham, Ala., engrs. CD 10/7.

BIDS ASKED—BUILDINGS

▲ **La., New Orleans** — SCHOOL — B.A. 5/26 — Orleans Parish School Bd., 703 Carondelet St., Uptown Negro Junior High School, $1,400,000. Plnas deposit $75, Favrot, Reed, Mathes & Bergman, Nola Bldg., archts. CD 8/22.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲† **Diamond Constr. Co.,** P.O. Box 1007, Norfolk, Va. CA **$2,756,747.** Desert Cove Piers, Ramps and Quays, Naval Amphibious Base, NOY 75738, Spec. 36503, LITTLE CREEK, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Mar. 17. CD 3/23, under LB.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Bush Constr. Co.,** Flat Iron Bldg., Norfolk, Va. (Sponsor), CA Approx. **$2,200,000,** construct, manage, finance, 307 Title VIII HOUSING units, utilities, site imprvs. at NAAS-NAOTS, CHINCOTEAGUE, VA. P. Wks. Office, Fifth Naval Dist., U. S. Naval Base, Norfolk, Va. Bids Apr. 17. CD 4/6.

▲ **Wise Contg. Co.,** 8th and Grace Sts., Richmond, Va. CA. **$1,500,000.** rug manufacturing PLANT addn., GLASGOW, VA. James Lees & Son, Glasgow, Va. CD 1/26.

▲ **Lowden Constr. Co.,** 3177 Vineville Ave., Macon, Ga., Owner Builds, **$1,350,000,** 100 RESIDENCES, MACON, GA.

▲ **The Austin Co.,** 16112 Euclid Ave., Cleveland, O., CA, **$3,500,000,** mfg. PLANT, DECATUR, ALA. Worthington Corp., 401 Worthington Ave., Harrison, N. J.

MIDDLE WEST

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **M. W. Kellogg Co.,** 225 Broadway, New York, N. Y., CA Approx. **$2,500,000,** oil REFINERY-sulphuric acid alkylation units to mfg. components for high octane aviation gasoline, CLEVELAND, O. Pure Oil Co., 35 E. Wacker Dr., Chicago, Ill.

▲ **Scholz Constr. Corp.,** 3662 Kenwood St., Toledo, O. Owner Builds. **$3,000,000,** 18 HOUSES of 100-California type ranch houses on 40-acre tract, Forest Hills Sect. (Others to follow after these are under way), in EAST CLEVELAND and CLEVELAND HEIGHTS, O.

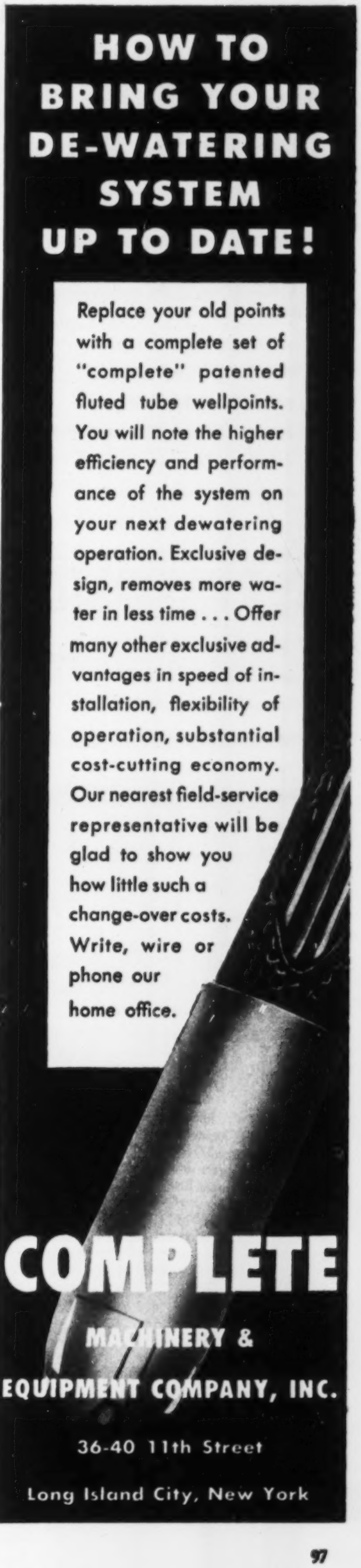
▲ **James I. Barnes Constr. Co.,** 6 Bechtle Ave., Springfield, O., CA. **$2,319,900,** general constr. women's DORMITORY for 634 women, 12 Ave. near Neil Ave., COLUMBUS, O. Bd. Trustees Ohio State University, N. High St., Columbus, O. Bids Mar. 19. CD 4/23, under LB.

WEST OF MISSISSIPPI

BIDS ASKED—HEAVY CONSTRUCTION
STATE HIGHWAY LETTINGS
BRIDGES
May 19, 20 Texas
STREETS AND ROADS
May 14, 15 Kansas May 15 Minnesota
May 19, 20 Texas

BIDS ASKED—BUILDINGS

▲ **Ia., Des Moines**—SCHOOL—B.A. 5/19—Bd. Educ., 629 3 St., May Goodrell Junior High School. $1,430,-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000. Wetherell & Harrison, 506 Shops Bldg., archts. CD 11/29/51.

HEAVY CONSTRUCTION

LOW BIDS AND CONTRACTS

▲ **Walco Engineering Co.**, 2408 E. 4 Place, Tulsa, Okla., CA, **$1,000,000** natural gas substation, Searcy; CA **$200,000** natural gas sub-station, Pocahontas; CA, **$1,000,000** natural gas substation, Texarkana, ARKANSAS. Texas Illinois Natural Gas Co., 20 W. Wacker Dr., Chicago, Ill. CD 11/18/49, under Texas.

▲† **E. H. Conrad**, 150 Simpson St., San Antonio, Tex., LB **$1,394,052**. four cell high thrust jet engine test cell bldg., Inv. No. (IFB) 34-601-53-344, OKLAHOMA CITY, OKLA. U. S. Govt., c/o Direc. of Procurement & Production, Tinker Air Force Base, Oklahoma City, Okla. Bids Apr. 21. CD 4/13.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Home Building Corp.**, Howard Sails, vice pres., Sedalia, Mo. Owner Builds. **$1,500,000.** rental HOUSING, 30 acre tract, adjoining Crestview addn., KANSAS CITY, MO.

▲ **MacDonald Constr. Co.**, 1310 S. Grand Blvd., St. Louis 4, Mo. LB **$2,089,000**, general contract;
Sodemann Heat & Power Co., 2306 Delmar Blvd., St. Louis 3, Mo. LB **$506,955**, heating, ventilating and air-conditioning contracts for 5 story, bsmnt., ground floor 125 x 156 ft., 52 x 61 ft., 38 x 52 ft., brick, stone, steel concrete HOSPITAL addn., upper floors cross-shaped, center section 52 x 193 ft., wings 52 x 73 ft., 52 x 61 ft. nurses home addn., 4 story ground floor, 43 x 140 ft., ST LOUIS, MO. Lutheran Hospital of St. Louis, 2646 Potomac St., and c/o Lutheran Charities Assoc. of St. Louis, 2637 Miami St., St. Louis 18, Mo. Bids Apr. 23. CD 4/3.

▲ **Ditmars, Dickmann & Pickens**, Gazette Bldg., Little Rock, Ark., LB, **$1,500,000** PLANT, OSCEOLA, ARK. Crompton Co., Waynesboro, Va. Bids Apr. 22. CD 1/3/51.

▲ **Dondlinger & Sons Constr. Co.**, 1206 E. Lincoln St., Wichita, Kan. CA **$1,538,800**. General contract 7 story OFFICE and AUDITORIUM, First and Market Sts., WICHITA, KAN. Kansas Gas & Electric Co., c/o Murray F. Gill, 201 N. Market St., Wichita, Kan. CD 4/29, under LB.

▲ **M. W. Kellogg Co.**, 225 Broadway, New York 7, N. Y. CA **$5,000,000-$6,000,000**, design and construct, modernization and addn. to REFINERY, incl. crude distillation, delayed coking, orchoflow fluid catalytic cracking and catalytic polymerization, AMARILLO, TEX. The Texas Co., 135 E. 42 St., New York 17, N. Y. CD 1/30/52.

▲ **J. F. Pritchard & Co.**, 908 Grand St., Kansas City, Mo. CA. **$7,350,000**, design and construct electric POWER PLANT; Approx. **$178,500**, WAREHOUSE; **$94,425**, SWITCHGEAR HOUSE and GAS REGULATOR HOUSE, near DENVER CITY, TEX. Southwest Public Service Co., 3 and Polk Sts., Amarillo, Tex. CD 4/28.

▲ **Rust Eng. Co.**, 575 Sixth Ave., Pittsburgh, Pa., CA Approx. **$2,650,000**. FERTILIZER PLANT unit, near PASADENA, TEX. Phillips Chemical Co., c/o Adams Terminal, Houston, Tex. CD 10/20.

▲ **R. T. Bickhard Constr. Co.**, 4001 Jason St., Denver, Colo., CA, **$1,700,000** cost plus fixed fee basis. general contract 11 story bsmnt. OFFICE, Sherman St. between E. Colfax and E. 16 Aves., DENVER, COLO. National Farmers Union, 1545 Sherman St., Denver, Colo. Awarded Apr. 13. CD 5/23/5.

FAR WEST

BIDS ASKED—HEAVY CONSTRUCTION

STATE HIGHWAY LETTINGS
STREETS AND ROADS
May 20 California

▲ **Wash., Centralia**—B.A. 6/16—City, City Hall, 7,500 hp hydraulic turbine for $1,500,000 hydro-electric project. Carey & Kramer, 1917 1 Ave. Seattle, engrs. CD 9/19.

BUILDINGS

LOW BIDS AND CONTRACTS

▲ **Downey Building Corp.**, 470 Beverly Dr., Beverly Hills, Calif., CA, **$2,049,200** 188 frame stucco DWELLINGS, Irvingrove Harley Hopelands Rives and Julius Aves., DOWNEY, CALIF. The National Group, Inc., 470 Beverly Dr., Beverley Hills, Calif. Wm. M. Bray 962 N. La Cienega Blvd., Los Angeles, Calif., archt.

▲ **Heirschberg Constr. Co.**, 6052 W. Venice Blvd., Los Angeles, Calif., CA, **$1,290,000**, four rein.-con. Fulton Junior High SCHOOL bldgs., Van Nuys, LOS ANGELES, CALIF. Bd. Educ., 1425 S. San Pedro St., Los Angeles, Calif. Bids Apr. 17. CD 4/24, under LB.

ALASKA

BIDS ASKED—BUILDINGS

▲† **Alaska, Ketchikan**—HIGH SCHOOL—B.A. 5/28—Alaska P. Wks., Dpt. Interior, Juneau, 1 and 2 story, 88,500 sq. ft. steel frame high school, concrete fdns. $1,985,000. Plans deposit $50. Extended date. Johnson & Botesch, 1st. Natl. Bank Bldg., Everett, Wash., archts. CD 4/9.

(Proposal Advertisements see p. 104 to 106)

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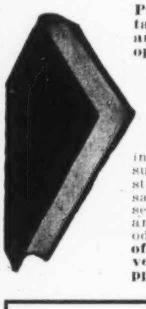

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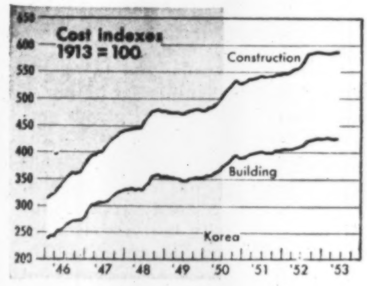
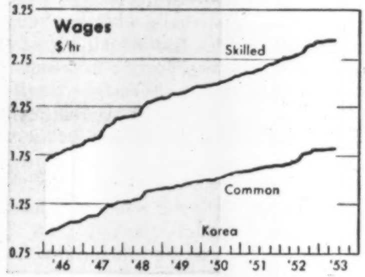
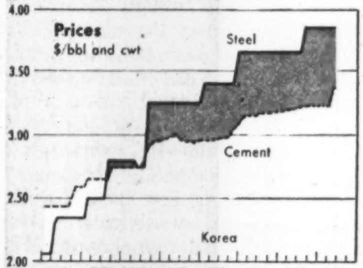
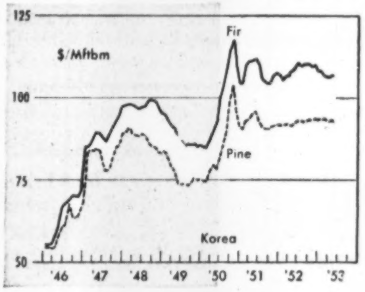








ENR INDEXES (1913 = 100), 20-cities' average	1953 May	% Change from last Month	% Change from last Year
Construction Cost*	589.21	−0.08	+5.8
Building Cost#	426.47	−0.04	+3.9
* April revised 589.71			
# April revised 426.63			
WAGE RATES, 20-cities' average			
Common	$1.824	0.0	+7.9
Skilled (aver. 3 trades)	2.955	+0.2	+5.7
Bricklayers	3.282	0.0	+4.5
Structural Ironworkers	2.891	+0.5	+6.1
Carpenters	2.692	0.0	+6.7
MATERIAL PRICES, 20-cities' average			
Cement, bulk, per bbl**	$3.365	0.0	+5.6
Structural Steel, (3-mill aver.), per cwt	3.850	0.0	+5.5
Sand, per ton	2.174	0.0	+3.3
Lumber, 2x4 Fir, per M. ft. bm	107.042	−0.5	−1.7
Lumber, 2x4 Pine, per M. ft. bm.	92.866	−0.4	+0.6
Common brick, per M	32.236	+1.8	+3.1
Ready-mixed concrete, per c. y	11.723	+2.2	+7.5
Structural Clay Tile, 3x12x12 per M	158.506	+2.7	+4.8
** April revised $3.365			

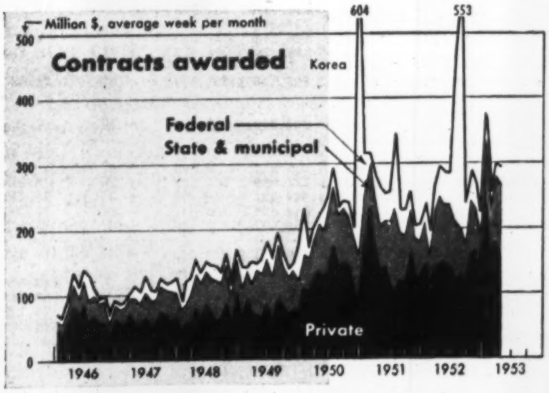
CONTRACTS AWARDED (Millions)	1953 April (5-weeks)††	1953 4-Mos. (18-weeks)††	% Change from '52 April (4-weeks)††	% Change from '52 4-Mos. (17-weeks)††
Total U. S. (ENR reported)	$1,473.2	$5,582.8	− 0.2	+25.2
Private	762.7	3,287.1	+ 4.1	+36.6
Public	710.5	2,295.7	− 4.4	+11.9
Federal	136.9	544.3	−41.5	−17.5
ENR Volume Index, '13 = 100	529	567	− 6.9	+17.4

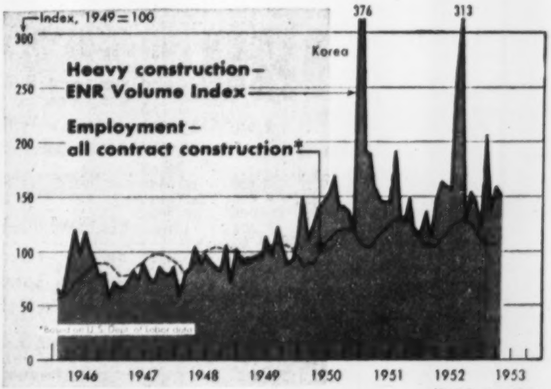
NEW CAPITAL (Millions)				
Total	1,016.1††	2,891.0††	+17.7	+12.3
State & Municipal Bond Sales.	390.3	1,442.5	−14.6	+32.2
Corporate Security Sales	609.5	1,400.0	+64.7	+ 0.6
Federal (non-federal work)	16.3	48.5	−55.6	−47.1
Federal (federal work)	———	———	———	———

†† Computed on weekly Average.

MATERIAL SHIPMENTS & LABOR SUPPLIES (Millions)	1953 Feb.(F) Mar.(M)	1953 2-Mos(2) 3-Mos(3)	% Change from Mo.	% Change from Yr.-Cum.
Cement bbls, Bu. of Mines	14.155(F)	27.675(2)	−1.4	+2.3
Fabr. Struc. Steel, tons AISC	.266(M)	.759(3)	−1.1	−0.1
Lumber, mil. ft. bm., NLMA	2.966(F)	5.977(2)	+0.5	+3.2
Lumber Prod., mil. ft. bm., NLMA	2.929(F)	5.889(2)	+2.1	+3.7
Contract Constr. Employ., BLS.	2.294(M)	2.288(3)†	−0.8	−1.0

† Average.





ENR Business News

BUSINESS AND FINANCE

Contracts slow down in April for first time this year

April is the first month this year in which the average weekly volume contract awards reported by ENGINEERING NEWS-RECORD and the Construction Daily has not shown a big gain over the corresponding month of last year. April awards averaged $294.6 million per week, about $0.5 million below April, 1952.

Here's why:

- Industrial building awards averaged only $36 million, down 46% from the weekly average for April, 1952. In every previous month this year, the weekly average of industrial contracts climbed a lot.
- Letting of federal contracts is still hamstrung by the re-examination order. April federal awards averaged $27.4 million a week, down 41% from the weekly average in the corresponding month of last year.

The reason why these figures are presented in terms of average weekly awards for the month is to make April comparable with last year. This year April had an extra week. That is why the total volume of awards—$1.5 billion—looks so good. It's 25% more than total volume for April, 1952.

It is hard to say at this point what the decline in industrial awards means for construction. It might indicate that the same worries about adjusting to "peace" conditions which have taken all the steam out of the stock market boom are causing businessmen to postpone their plans for capital spending.

On the other hand, it may only mean that the heavy volume of industrial awards in the first quarter was partly borrowed from the second quarter. Because of the open winter, contracts may have been let in January and February which otherwise would have been coming along this spring. For the first quarter, industrial awards ran 50% ahead of last year. For the first four months, they are still 20% ahead of 1952.

• **Four-month record** — Furthermore, even though there was no gain in April, total contracts for the first four months have reached a record high of $5.6 billion. That's 25% above 1952, after allowing for difference in number of weeks (table).

And there are plenty of other encouraging signs. The April decline in industrial and federal awards was almost entirely offset by: (1) A climb of 13% in the weekly average of state and municipal awards, and (2) sharp advances in the commercial building, private mass housing, and private unclassified categories.

Moreover, if you put all public construction together, you'll see big gains. Highway awards, for instance, were up 26% compared with last year. Bridges averaged $12.9 million, up 40%. Awards for public unclassified were up 69%; sewerage contracts were up 16%. And there was a 44% rise in waterworks contracts, which have reached a record level for the first four months (page 21).

The losses in public construction came in public housing (down 54%), other public building (down 13%), and earthwork and waterways (down 64%). Almost all the work in this last category is federal.

In spite of the decline in industrial contracts, the weekly average of commercial building awards climbed 112% in April over the same 1952 month. Private mass-housing contracts, averaging $72.1 million, were up 27%.

• **Commercial boom**—It's worth noting that commercial building and mass housing are setting new records this year. Commercial awards total $345 million for the first four months, almost double what they were in the same 1952 period. Mass-housing contracts total $1,424 million, an increase of 47%.

ENGINEERING CONSTRUCTION CONTRACTS—APRIL 1953

ENGINEERING NEWS-RECORD *reports continental U. S. Construction projects of the following minimum costs—Waterworks, excavation, drainage and irrigation, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000*

Five Weeks—Thousands of Dollars (000 Omitted)

	April, 1953							—U S. Cumulative— Four Months		%	
	New England	Middle Atlantic	South	Mid-West	West of Mississippi	Far West	Total U. S.	1953 (18 weeks)	1952 (17 weeks)	Change '52 to '53 (Avg. wk.)	Canada April 1953
Public Works											
Waterworks	391	622	6,163	2,859	10,486	8,331	**28,852**	**88,540**	81,453	+ 3	1,115
Sewerage	2,060	5,277	4,417	9,255	9,752	2,858	**33,619**	**125,305**	73,015	+62	1,737
Bridges	2,457	9,813	18,000	9,202	17,222	7,681	**64,375**	**280,364**	104,416	+154	175
Earthwork and drainage	319	1,184	4,941	240	10,988	18,951	**36,623**	**128,360**	180,910	− 33	2,846
Streets and roads	3,472	113,772	26,613	30,139	45,857	13,513	**233,366**	**534,741**	415,590	+ 22	1,347
Public buildings, residential	1,679	27,153	5,724	6,301	8,027	4,141	**53,025**	**239,360**	327,887	− 31	....
Other public buildings	8,136	37,719	33,682	34,391	21,323	28,412	**163,663**	**578,160**	537,372	+ 2	9,961
Unclassified	7,669	9,929	25,587	6,232	25,715	21,867	**96,999**	**320,876**	214,935	+ 41	6,440
Total public	**26,183**	**205,469**	**125,127**	**98,619**	**149,370**	**105,754**	**710,522**	**2,295,706**	**1,935,578**	**+ 12**	**23,621**
Federal government (included in above classifications)	**7,640**	**11,092**	**33,365**	7,613	29,820	47,323	**136,853**	**544,332**	621,992	**− 17**	**7,896**
Private											
Bridges	....	930	....	....	375	97	**1,402**	**5,552**	9,840	− 47	....
Industrial buildings	5,600	16,646	35,687	31,168	60,962	30,170	**180,233**	**1,227,088**	967,522	+ 20	8,942
Mass housing	4,690	137,915	77,879	50,205	59,304	30,427	**360,420**	**1,424,291**	916,413	+ 47	18,440
Commercial buildings	10,095	26,799	22,657	27,057	28,350	5,497	**120,455**	**344,524**	166,947	+ 95	7,799
Unclassified	47,575	1,165	13,679	4,000	29,723	4,070	**100,212**	**285,672**	212,118	+ 27	84,676
Total private	**67,960**	**183,455**	**149,902**	**112,430**	**178,714**	**70,261**	**762,722**	**3,287,127**	**2,272,840**	**+ 37**	**119,857**
Total Engineering Construction:											
April, 1953 — 5 weeks	**94,143**	**388,924**	**275,029**	**211,049**	**328,084**	**176,015**	**1,473,244**	....	....	....	**143,478**
March, 1953 — 4 weeks	34,323	195,854	242,951	240,047	313,125	173,748	**1,200,048**	....	....	....	69,349
Ap 1952 — 4 weeks	78,905	239,159	237,547	141,276	321,213	162,240	**1,180,340**	....	....	....	75,102
Four Months — 1953	**252,840**	**1,172,885**	**938,267**	**1,372,000**	**1,158,760**	**688,081**	....	**5,582,833**	....	+ 25	**349,063**
Four Months — 1952	175,847	779,227	971,938	599,439	1,177,680	504,287	....	....	4,208,418	....	341,120
% Change '52 to '53 (Avg. Week)	+36	+42	−9	+116	−7	+29	....	....	....	....	−3

LeTourneau sale

Westinghouse Air Brake plans to buy part of machinery business

R. G. LeTourneau, Inc., plans to sell its earth-moving equipment, tractor, and related business to Westinghouse Air Brake Co., along with its international sales and distribution organization and its plants at Peoria, Ill., and Toccoa, Ga.

The announcement came last week as soon as management of the two companies agreed in principle on the deal. The news came out before final details were worked out, because rumors were causing a fast run-up in LeTourneau stock. R. G. LeTourneau, president of the company that carries his name, and Edward O. Boshell of Westinghouse caution that the deal still hangs on solution of "several legal and technical problems." Of course, it has to be okayed by stockholders.

Westinghouse's reasons for buying part of the LeTourneau business are pretty clear. Like other manufacturers of railroad equipment, it has been diversifying in recent years in order to avoid sharp ups and downs in business. Much of the company's business is making air brakes for trains, trolley coaches, and other vehicles. Through its Union Switch & Signal Division, it is a leading maker of railway signals. It also makes industrial air compressors and pneumatic devices.

Late last year, Westinghouse acquired LeRoi Co. maker of engines and air compressors for the Petroleum industry. In April, it announced plans to buy George E. Failing Co., of Enid, Okla., which makes portable drilling rigs.

LeTourneau's reasons for the proposed sale are more obscure. Some observers believe he wants cash for an African development venture, and perhaps to pay for a steel plate mill he built at Longview, Tex.

The LeTourneau Company will continue to own and operate its Vicksburg, Miss., and Longview plants, to make special equipment for the government, and land-clearing equipment, cranes, and other products not related to earth-moving.

Le Tourneau will continue his research work in the earth-moving field for Westinghouse, which probably will form a new subsidiary, LeTourneau-Westinghouse Co. to handle that part of the business.

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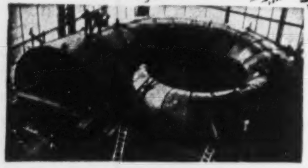

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Volume of new building continues to climb

New construction put in place in April totaled $2.6 billion, according to preliminary estimates by the Departments of Commerce and Labor. That's 5% above April, 1952, and an 8% gain during the month from the March level.

Public construction gained much faster than private during April, though for the first four months of the year the percentage gain in private work was higher. Seasonal gains in road building, and more public spending for industrial plants—including atomic energy facilities—accounted for most of the gain in public work. Total for the month was $837 million, up 14% from March.

Private construction gained 5% in April, mainly because of a rise in residential and public utility construction. Total for April: $1.8 billion.

• **Housing up**—About $887 million was spent on new non-farm housing, a gain of 6%. Public utility construction, which totaled $344 million in April, gained 9% over March.

At $192 million, industrial building was slightly lower than in March, though still running at a near-record level for this time of year. Judging by contract awards reported to ENR in April (page 100), industrial building is expected to continue tapering off.

Commercial and most other major types of private non-residential work stayed about the same as in March, at a level considerably above the corresponding 1952 month.

For the first four months, a total of $9.6 billion of new construction has been put in place, up about 6% from 1952. The gain in private construction was 7%, while public work gained only 3%.

LA cement shortage

Booming construction and a dry winter have created a serious cement shortage in Southern California. Some small home and light commercial projects have been brought to a temporary halt, and most larger projects have noticeably slowed down. Cement is now being sold on allocation.

Some cement manufacturers say the shortage may last six months.

The main reason for the shortage: a dry winter. It usually rains during the winter enough so that building activity slows down and cement makers have a chance to build up inventory. But this year builders were able to go ahead full tilt.

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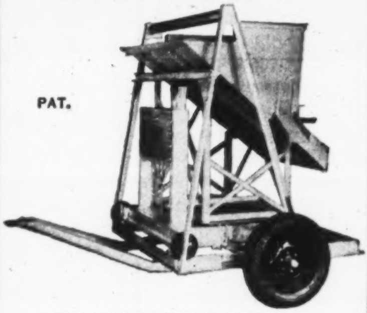

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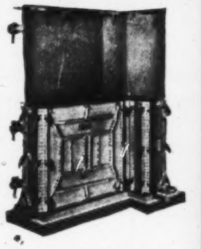

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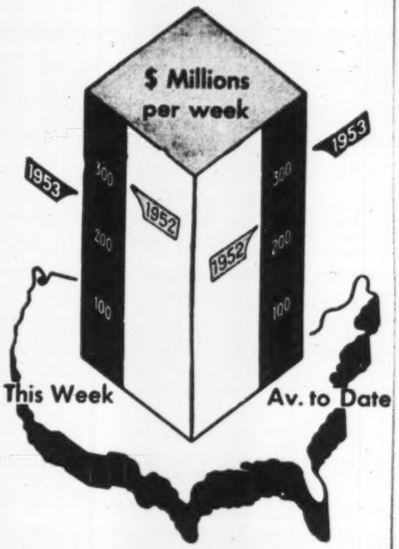
ENR indexes stand still

ENR's Construction Cost and Building Cost indexes for May are practically the same as for April, when both indexes went to new highs.

The Construction Cost Index is 589.21 (1913 = 100). This is only a tiny fraction of 1% less than April. The Building Cost Index is 426.47.



Activity This Week

As reported to ENR
(in millions of dollars)

Amount of contracts let

	This Week	Cumulative 19 wks 1953	Cumulative 19 wks 1952	% chge
Federal	$20.8	$565.1	$738.0	−23
State and Municipal ..	79.3	1,830.7	1,503.4	+22
Total pub...	100.1	2,395.8	2,241.4	+7
Total priv...	152.5	3,439.6	2,570.3	+34
U. S. Total	**$252.6**	**$5,835.4**	**$4,811.7**	**+21**

Contracts by type of work

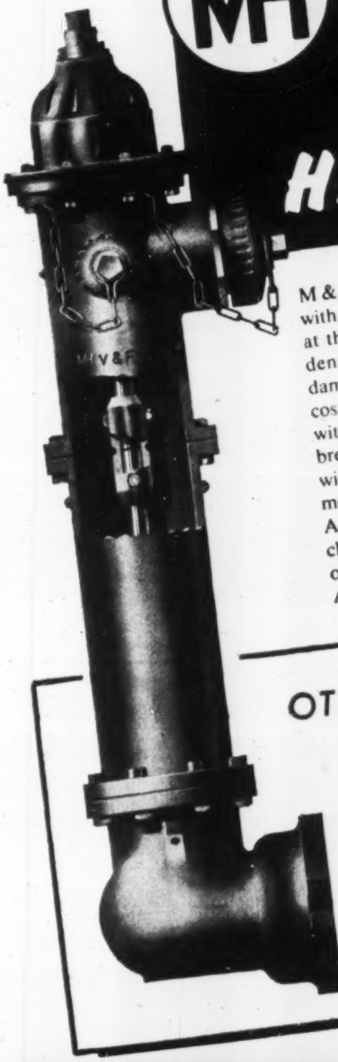
	This Week	Cumulative 19 wks 1953	Cumulative 19 wks 1952	% chge
Waterworks .	$3.6	$92.1	$88.8	+4
Sewerage ...	9.8	135.0	80.2	+68
Bridges	7.8	293.5	134.1	+119
Highways ..	35.8	570.5	491.0	+16
Earthwork, Waterways.	2.2	130.8	221.3	−41
Buildings:				
Public, excl. hsg.	24.6	603.0	605.5	0
Housg., pub.	3.8	243.1	368.7	−34
Housg., priv.	92.5	1,516.7	1,079.1	+41
Commercial	11.5	356.1	203.4	+75
Industrial .	41.8	1,269.0	1,055.4	+20
Unclassified.	19.2	625.6	484.2	+29
Total	**$252.6**	**$5,835.4**	**$4,811.7**	**+21**

NOTE: Minimum size projects included are: Waterworks and waterway projects, $34,000; other public works, $60,000; industrial buildings, $82,000; other buildings, $300,000.

ENR indexes

		Base Year = 100 1913	1926	1949
Constr. cost	May	589.21	283.23	123.52
	Apr.	589.71*	283.47*	123.62*
Bldg. cost	May	426.47	230.54	121.23
	Apr.	426.63*	230.62*	121.27*
Volume	Apr.	529	215	153

* Revised



MH TRAFFIC MODEL
FIRE HYDRANTS

M & H Traffic Model Fire Hydrant is designed with a breakable coupling and breakable bolts at the ground line. In the event of traffic accident, the breakable parts separate without damage to other parts of the hydrant. Repair costs are negligible, quickly and easily done with another breakable coupling and eight breakable bolts. This repair work can be done without shutting off the water. M & H Traffic model is similar in design to M & H standard A. W. W. A. hydrant, and parts are interchangeable. For complete information, write or wire M & H Valve and Fittings Company, Anniston, Alabama.

OTHER MODELS

(1) A. W. W. A. standard (2) Mill Yard or "I. G. N." (3) Approved and listed by Underwriters' Laboratories and Associated Factory Mutual Laboratories. (4) Flush type fire hydrants which set completely underground.

For complete information, write or wire M & H Valve and Fittings Company, Anniston, Alabama.

M&H PRODUCTS FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

Stang WELLPOINT SYSTEM

For KNOW-HOW
ENGINEERING
SUPERVISION
EQUIPMENT
to keep jobs DRY

The Stang System has proved its efficiency and economy on both large and small jobs all over the United States. Stang engineering and supervision in planning, installation and operation insures a DRY JOB at all times.

JOHN W. STANG CORPORATION

2 Broadway,
New York 4, N Y

2123 S. 56th St,
Omaha Neb

8221 Atlantic Ave.,
P.O. Box 631, Bell, Cal.

OFFICIAL PROPOSALS

RATE: THE RATE FOR OFFICIAL PROPOSAL ADVERTISING IS $1.50 PER LINE (OR FRACTION) PER INSERTION.

CLOSING DATE: FRIDAY 10:30 A. M. FOR THE ISSUE DATED THE FOLLOWING THURSDAY.

SEND COPY TO: OFFICIAL PROPOSAL DIVISION, ENGINEERING NEWS-RECORD, 330 W. 42ND ST., NEW YORK 36, N. Y.

U. S. Government

NOTICE IS HEREBY GIVEN that sealed bids on Invitation No. 703S-305 for furnishing and delivering autotransformers and power circuit breakers for Casper substation, Kendrick Project, Wyoming will be mailed to P.O. Box 280, Casper, Wyoming or delivered to the office of the Bureau of Reclamation in time for the public opening at 2:00 p.m., Mountain Standard Time, May 21, 1953, at the office of the Bureau of Reclamation, Reclamation Center, Casper, Wyoming.

Copies of the standard forms and of the invitations may be obtained from the following offices of the Bureau of Reclamation: Avery A. Batson, Regional Director, Building No. 46, Denver Federal Center, Denver, Colorado; and I. J. Matthews, District Manager, P. O. Box 280, Casper, Wyoming. No charge for copies of the invitations furnished for bidding purposes; for all others $0.25 per copy, not returnable. Payments should be made by check or money order payable to the Treasurer of the United States.

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3938) will be received at Palisades, Idaho, until May 21, 1953, for furnishing labor and materials for: Snake River Bridge Substructure and Roadway Approach Embankment for Relocation of Wyoming State Highway, U. S. 89, Palisades Reservoir, Palisades Project, Idaho. Location near Alpine, Lincoln County, Wyoming. Principal items are: 47,000 cu. yds. excavation; 4,000 cu. yds. riprap; 3,100 cu. yds. concrete; 6,000 lbs. metalwork; and other work. Completion time 330 days. For particulars, address Bureau of Reclamation, Palisades, Idaho; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL, Assistant Secretary
for Water and Power Development
Department of the Interior

DEPARTMENT OF THE INTERIOR, Bureau of Reclamation. Sealed bids (Specifications No. DC-3942) will be received at Superior, Nebraska, until May 21, 1953, for furnishing labor and materials for earthwork and structures, Naponee Canal, Sta. 0+00 to Sta. 473+25; Lateral 2.1 and drains; and Franklin Laterals, Lateral 5.4 to 24.0, inclusive, and sublaterals. Location near Bloomington and Franklin, Nebraska. Principal items are: Excavation 407,000 c.y.; concrete 970 c.y.; furnishing and laying 11,000 lin. ft. precast concrete pipe; and other work. The work is divided into two schedules. Completion time 600 days. For particulars, address Bureau of Reclamation, Superior, Nebraska; or Building 53, Denver Federal Center, Denver, Colorado.

FRED G. AANDAHL,
Assistant Secretary for Water
and Power Development Department of the Interior

SALE OF DREDGE: Sealed bids will be received until 10:30 A.M., 28 May 1953, CDST and then opened for sale of Dredge, C. B. Harris, length overall with cutter 210; Length Hull 175′, Width Beam Molded 50′, Displacement, tons light, 1320, Steel Hull, Discharge Pipe 24″ I. D. with attendant plant equipment and spare parts. Complete information from: Louisville District, Corps of Engineers, P. O. Box 59, Louisville 1, Ky.

OFFICIAL PROPOSALS

Bids: May 19, 1953

Bronze Venturi Meters Contract 422

SEALED BIDS will be received by the Board of Water Supply, at its offices, thirteenth floor, 120 Wall Street, New York City, until 10:00 A.M., Eastern Standard Time, on Tuesday, May 19, 1953, for Contract 422, for furnishing, testing and delivering two 60-inch by 42-inch, one 20-inch by 12-inch and one 16-inch by 12-inch bronze nozzle type Venturi meters, instrument assemblies, bronze castings, electric cables and appurtenances for the Downsville release water chamber and the Neversink intake chamber of the Delaware system, all as set forth in the specifications.

No bid will be received and deposited unless accompanied by a certified check upon a National or State bank, drawn and made payable to the order of the Comptroller of the City of New York, in the amount of ten thousand dollars ($10,000.00), for the proper execution of the contract.

At the above place and time the bids will be publicly opened and read. Pamphlets containing information for bidders, forms of bid and contract, specifications, contract drawings, requirements as to surety, etc., can be obtained in Room 1316, at the above address, upon application in person or by mail, by depositing the sum of five dollars ($500) in cash or its equivalent for each pamphlet. Within 30 days following the award of contract or rejection of bids, the full amount of such deposit will be refunded for each pamphlet submitted as a bid and a refund of four dollars ($400) will be made for each other pamphlet returned in acceptable condition. Arrangements will be made whereby prospective bidders desiring blueprints of the contract drawings for their own use may secure same, the cost thereof to be paid by them. For further particulars, apply at the office of the Chief Engineer at the above address.

IRVING V. A. HUIE, President, RUFUS E. McGAHEN, EDWARD C. MAGUIRE, Commissioners, Board of Water Supply; BETTY COHEN, Acting Secretary.

Bids: May 28, 1953

PHILADELPHIA, PENNA.
PROCUREMENT DEPARTMENT
WATER DEPARTMENT

Sealed Proposals will be received at Room 313 City Hall Annex, until 1:30 P.M. Daylight Saving Time, Thursday, May 28, 1953, and opened at that time in Room 313 City Hall Annex, Philadelphia, Pennsylvania, for

MAIN EFFLUENT CONDUITS IN PROPOSED ISLAND AVENUE AND CITY PROPERTY BETWEEN THE DELAWARE RIVER AND SOUTHWEST SEWAGE TREATMENT WORKS. CONTRACT NO. SD-152-SW

Principal items of work

193 feet of 7′ x 10′ triple section reinforced concrete conduit on piles
3,196 feet of 7′ x 10′ twin section reinforced concrete conduit on piles
1,771 feet of 7′ x 10′ twin section reinforced concrete conduit on earth
317 feet of 7′ x 8′ reinforced concrete conduit
27,800 cubic yards of embankment

Proposal forms and specifications may be obtained in Room 1101, City Hall Annex. Blueprints of plans may be purchased at bidder's expense, directly from the Keystone Blue Paper Company, 51 North 13th Street, Philadelphia, Pennsylvania.

No bids will be received unless bidder is qualified by the Procurement Commissioner. The questionnaire form with all questions fully answered must be filed with the Water Commissioner, 1103 City Hall Annex, Philadelphia 7, Pennsylvania, at least one (1) week prior to the date of opening bids.

Each proposal must be accompanied by security in form and amount as set forth in the proposal form.

A. ALBERT CHERASHORE
Procurement Commissioner

PENNSYLVANIA TURNPIKE COMMISSION

Sealed proposals will be received by the Pennsylvania Turnpike Commission, through the Chairman, 11 North Fourth Street, Harrisburg, Pennsylvania, until 10:00 a.m., Eastern Daylight Saving Time, the 25th day of May 1953, and immediately thereafter will be taken to the Public Utility Commission's Hearing Room No. 1, North Office Building, State Capitol, Harrsiburg, Pennsylvania, and publicly opened and read aloud for the following contract:

Fort the construction of structures, and the grading, drainage, and paving of Turnpike Section 32-B, part of the Delaware River Pennsylvania Turnpike Extension in Upper Merion Township, Montgomery County, Commonwealth of Pennsylvania, this section being situated as follows:

Beginning at a point 1778.07 feet west of L. R. 143 in Upper Merion Township, at Turnpike Station 198+00, Montgomery County; thence in an easterly direction 17,532 feet to a point 434 feet west of the center line between tracks of the Norristown Branch (P. G. & N. R. R.) of the Reading Company on the west bank of the Schuylkill River in Upper Merion Township, Montgomery County, at Turnpike Station 373+17, a distance of 3.32 miles.

The approximate quantities of the principal items are as follows:

Class 1 Excavation	951,621	cubic yards
Class 2 Excavation	17,952	cubic yards
Class 2A Excavation	2,528	cubic yards
Special Subgrade	239,350	square yards
Reinforced Concrete Pavement	153,343	square yards
Class "A" Concrete	5,430	cubic yards
Class "B" Concrete	3,876	cubic yards

Copies of plans, specifications and other contract documents, including cross-sections, are on file and open to public inspection at the offices of the Pennsylvania Turnpike Commission located at Harrisburg, Pennsylvania on 4 May 1953. Plans, specifications, cross-sections, and other contract documents will not be available before this date for inspection or for mailing to prospective bidders. Copies of specifications for grading, drainage, paving and structures may be purchased from the Pennsylvania Turnpike Commission for the sum of five (5) dollars per copy.

Plans and contract documents, for this section, exclusive of specifications, may be obtained from the Commission upon deposit of ten (10) dollars for each set, such deposits to be refunded in full to any actual bidder upon return of such documents in good condition within five (5) days after the date of the opening of the bids. Refund will be made for all plans and contract documents returned, if the project is withdrawn from letting by the Pennsylvania Turnpike Commission.

Remittances are payable to the Pennsylvania Turnpike Commission and must accompany requests for specifications, drawings and contract documents.

The character and amount of bid security to be furnished by the bidder is stated in the Instructions to Bidders.

The Commision reserves the right to waive any informalities in or to reject any or all bids.

No bids may be withdrawn for thirty (30) days after the scheduled closing time for receipt of bids.

PENNSYLVANIA TURNPIKE COMMISSION
James F. Torrance
Secretary and Treasurer
Harrisburg, Pennsylvania

Bids: May 21, 1953

Air Conditioning System— Domestic Terminal Building Control Tower— La Guardia Airport

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M-186

Sealed proposals for furnishing all labor, materials and equipment necessary to install air conditioning system at the Domestic Terminal Building Control Tower, La Guardia Airport, 94th Street and Grand Central Parkway, Jackson Heights, N. Y., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) on the morning of Thursday, May 21, 1953, at which time and place bids will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 21, 1953

New York State Road Work

NOTICE TO CONTRACTORS: STATE DEPARTMENT OF PUBLIC WORKS, ALBANY, N. Y.—Pursuant to the provisions of the Highway Law, Public Buildings Law, and Article 2, Title 9 of the Public Authorities Law, and special provisions for projects financed with Federal Aid funds, sealed proposals will be received until ten-thirty o'clock A.M., advanced standard time, which is nine-thirty o'clock A.M., eastern standard time, on the 21st day of May 1953, by Henry A. Cohen, Director, Bureau of Contracts and Accounts, 14th Floor, The Governor Alfred E. Smith State Office Building, Albany, N. Y., for the following projects:

County	Contract No.	Name	Miles	Type	Deposit	Estimated Cost of Work
		DISTRICT No. 1 G. L. Nickerson District Engineer, 353 Broadway, Albany, N. Y.				
Schenectady	M.T. 53-9	New York State Thruway—Mohawk Sect.—Sub. 1 (D. & H. R.R. and N. Y. C. R.R.)	0.37	9" Cem. Conc. Pavt. 2 @ 25' Wide=0.29 Mi. Grading & Drainage=0.06 Mi. Misc. Work=0.02 Mi. R.R. Sep. Plate Girder 228' R.R. Sep. Comp. I-Beam 189'	$59,000 Plans $15	$1,072,000
		DISTRICT No. 2 L. Ketchum, District Engineer, 109 No. Genesee St., Utica, N. Y.				
Oneida	F.A.C. 53-12 F.A.S.H. 53-9 F.A.R.C. 53-40	Utica City: North-South Arterial (Horatio St.) Horatio St. Extension Deerfield Corners-Marcy Hill, S.H. 933 Project U-752(3)	2.71	Asp. Conc. Ty. 1A, OPT.=2.70 Mi. Misc. Work=0.01 Mi. Hy. Sep. Comp. I-Beam 130.4'	$60,000 Plans $15	1,065,000
		DISTRICT No. 4 E. G. H. Youngmann, Barge Canal Terminal, Rochester, N. Y.				
Genesee and Livingston	F.A.R.C. 53-39	Alexander-Canawaugus Pts. 4, 5, 6 & 6-A, S.H. 8471-8490-1957-8504 Project F-611(14)	12.20	Asp. Conc. Type 1A, Opt.	$35,000 Plans $10	608,000
		DISTRICT No. 6 J. H. Thomas, District Engineer, 30 West Main Street, Hornell, N. Y.				
Chemung	F.A.C. 53-13	Elmira City: Madison Ave. & Lake St. (E. Water St.-Linden Pl.) Project U-479(8)	1.02	Asp. Conc. Type 2A	$27,000 Plans $15	493,000
Steuben	F.C. 53-1	Cityof Corning: Monkey Run Conduit (Flood Control)	....	155' x 10.5' Concrete Conduit	5% of Bid Plans $10	308,565
		DISTRICT No. 7 R. W. Sweet, 444 Van Duzee St., Watertown, N. Y.				
St. Lawrence	F.A.R.C. 53-28	Elmdale-Gouverneur, S.H. 875 Project F-290(3)	0.57	Asp. Conc. Ty. 1A, Opt.=0.56 Mi., Misc. Work=0.01 Mi. 3 Span Thru Truss 310'	$25,000 Plans $10	424,000
		DISTRICT No. 8 J. S. Bixby, District Engineer, Pleasant Valley Road, Poughkeepsie, N. Y.				
Dutchess	F.A.R.C. 53-33	Pawling Village, S.H. 5009; Pawling-Dover Town Line, S.H. 612; Dover Plains-Pawling Town Line, Pt. 2 S.H. 5326; Project F-350(21)	3.25	9" Cem. Conc. Pavt. 24' Wide	$50,000 Plans $15	947,000
		DISTRICT No. 9 F. W. Donovan, District Engineer, 71 Frederick Street, Binghamton, N. Y.				
Delaware	F.A.R.C. 53-42	Hancock-Long Eddy, S.H. 8464 Project F-502(14)	5.45	Bit. Macadam Type 1	$10,000 Plans $10	172,000
		DISTRICT No. 10 M. Goul, District Engineer, Montauk Highway, Babylon, L. I., New York				
Kings	F.A.B.Q.E. 53-1	Brooklyn Queens Expressway (Cont. 17) Project U-1066(13)	0.36	Retaining Walls, Paving Drainage, Landscaping & Misc. Work	$25,000 Plans $25	435,000
Suffolk	F.A.R.C. 53-38	Huntington Town Line-Farmingdale, Pt. 1, S.H. 1218 Huntington-Amityville Pt. 1, S.H. 794 Project AU-297(2)	2.95	9" Cem. Conc. Pavt. 2 @ 25' Wide=2.86 Mi. Asp. Conc. Ty. 1A, Opt.=0.09 Mi.	$67,000 Plans $15	1,233,000

Maps, plans, specifications and proposal forms may be seen and obtained at the office of the State Department of Public Works, Bureau of Contracts and Accounts, Albany, N. Y., and at the office of the District Engineers noted above, and may also be seen at the office of the State Department of Public Works, 270 Broadway, New York City.

The deposit for Plans and Proposal Forms for each contract is indicated above. A refund will be made in full to bidders for return of one set, in good condition, within 30 days of award, or rejection of bids; refund for all other sets in good condition, similar period, will be 50% of deposit.

Special attention of bidders is called to "General Information for Bidders" in the proposal, specification, and contract agreement, and to the special provisions applying to projects financed with federal funds. Award of a contract is subject to the "Controlled Materials Plan" of the National Production Authority as well as to regulations issued thereunder.

Proposal for each contract must be submitted in a separate sealed envelope with the name and number of the contract plainly endorsed on the outside of the envelope. Each proposal must be accompanied by draft or certified check payable to the order of the "State of New York, Commissioner of Taxation and Finance" for the sum as specified in the advertisement and the proposal. The retention and disposal of the bidding check, the execution of the contract and bonds shall conform to the provisions of the Highway Law, as set forth in "Instructions to Bidders."

When optional types are permitted on contracts with federal funds, bidders must state in the space provided in the proposal the exact designation of the optional type upon which the proposal is predicated.

The right is reserved to reject any or all bids.

B. D. TALLAMY
SUPT. OF PUBLIC WORKS

Bids: May 25, 1953

Electrical Rehabilitation for Headhouses

THE PORT OF NEW YORK AUTHORITY
HOBOKEN-PORT AUTHORITY PIERS
CONTRACT HP-110.009

Sealed proposals for electrical rehabilitation for headhouses at Hoboken-Port Authority Piers at Hoboken, New Jersey will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:45 P.M. Monday, May 25, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 7, 1953

Bids: May 26, 1953

Repairs and Sealcoating Apron of Temporary Cargo Buildings

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-270.007

Sealed proposals for repairs to and sealcoating of the asphalt paved apron west of Temporary Cargo Buildings No. 174 and 175 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M. Tuesday, May 26, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $10.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials, who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not so returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 7, 1953.

Bids: June 9, 1953

Hangar No. 7 Superstructure

THE PORT OF NEW YORK AUTHORITY
NEW YORK INTERNATIONAL AIRPORT
CONTRACT NYA-290.004

Sealed proposals for the construction of the superstructure (exclusive of the structural steel and hangar doors) for Hangar No. 7 at New York International Airport will be received at the office of the Chief Engineer of The Port of New York Authority, Room 1100, 111 Eighth Avenue, New York 11, N. Y., until 2:30 P.M., Tuesday, June 9, 1953, at which time and place said proposals will be opened and read.

Contract documents may be seen at the office of the Engineer of Materials of the Authority, Room 1110, and copies will be furnished upon deposit of $25.00 per set. The deposit shall be delivered to the Treasury Department, Room 1001, where a receipt in duplicate will be issued. A copy of the receipt shall be delivered to the Engineer of Materials who will furnish the contract documents. The deposit will be remitted if the documents are returned in good condition, not later than forty days after the opening of proposals. The deposit will be forfeited if the documents are not returned within the forty days.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, May 7, 1953

OFFICIAL PROPOSALS

enable you to get the greatest variety of bids —and so to get the lowest prices consistent with the best work.

OFFICIAL PROPOSALS

Bids: May 22, 1953

Two Four-Wheel Drive Wheel Type Tractor Shovel Loaders

THE PORT OF NEW YORK AUTHORITY
PORT NEWARK MARINE TERMINAL
AND NEWARK AIRPORT
PROPOSAL NO. 90

Sealed proposals for furnishing two four-wheel drive wheel type tractor shovel loaders for delivery to Newark Airport, Hayes Avenue and Port Street, Newark, N. J., and Port Newark Marine Terminal, South Dock and Terminal Streets, Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) on the morning of Friday, May 22, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 21, 1953

Steam Heating System—Building No. 110—Port Newark Marine Terminal

THE PORT OF NEW YORK AUTHORITY
CONTRACT O&M-175

Sealed proposals for furnishing all labor, materials and equipment necessary to install steam heating system at Building No. 110, Port Newark Marine Terminal, South Dock and Terminal Streets, Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 11:00 A.M. (E.D.S.T.) on the morning of Thursday, May 21, 1953, at which time and place bids will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 26, 1953

Contracts SD-39, 46, 49, 50

SEALED PROPOSALS will be received by the President of the Levy Court of New Castle County, Room 134-A, Public Building, Wilmington, Delaware, until 11:00 A.M. Daylight Saving Time, on May 26, 1953 and at that time publicly opened for contracts involving the following approximate quantities:

CONTRACT SD-39
DUROSS HEIGHTS

Lump	Sum	Clearing & Grubbing
10,000	C.Y.	Excavation
400	C.Y.	Borrow Pit Stripping
9,000	C.Y.	Selected Borrow
2,400	Tons	Hot-Mix Asphaltic Concrete
4,600	Gal.	R. C. 1 Tack Coat
9.0	C.Y.	Cement Conrete Pavement
25.0	C.Y.	Cement Concrete Masonry
475	Lbs.	Reinforcing Steel
350	L.F.	15" R. C. Pipe
54	L.F.	24" R. C. Pipe
54	L.F.	30" R. C. Pipe
57	L.F.	36" R. C. Pipe
63	L.F.	A.C.C.M. Pipe Arch 16 Gauge (22" x 12")
60	L.F.	A.C.C. Pipe Arch 16 Gauge (25" x 16")
110	L.F.	A.C.C.M. Pipe Arch 14 Gauge (29" x 18")
100	L.F.	4" Vit. Clay Pipe
310	S.Y.	Cement Concrete Gutter 6"
1	Each	Catch Basin, Type PW
3	Each	Catch Basin, Type B
1	Each	Catch Basin, Type Special
1	Each	Special Junction Box
1,640	Lbs.	Castings
0.7	Acres	Seeding & Mulching
950	S.Y.	Sodding
120	L.F.	6" Perforated Corrugated Metal Pipe Underdrain

CONTRACT SD-46
McDANIEL HEIGHTS
Nichols Avenue

830	C.Y.	Excavation
840	T.	Selected Borrow
600	T.	Waterbound Base Course
250	T.	Hot Mix Asphaltic Concrete
400	Gal.	Tack Coat (R.C. 1)
1	C.Y.	Cement Concrete Masonry
38	S.Y.	Cement Concrete Gutter
1560	L.F.	Integral Concrete Curb & Gutter
700	S.Y.	Topsoil
0.15	A.C.	Seeding
1	Each	Adjust Manholes
1	Each	Adjust Catch Basin
50	L.F.	Delaying 12" R.C. Pipe
35	L.F.	4" V.C. Pipe
16	L.F.	6' V.C. Pipe
26	S.F.	4' Concrete Sidewalk

McDANIEL CREST
CONTRACT SD-49
Orchard Drive

2050	C.Y.	Excavation
1850	T.	Selected Borrow
1400	T.	Waterbound Macadam Base
520	T.	Hot-Mix Asphaltic Concrete
900	Ga.	R. C. I. Tack Coat
30	L.F.	4" V. C. Pipe
150	S.Y.	Cement Concrete Gutters
3480	L.F.	Integral Curb & Gutters
1950	S.Y.	Topsoil
0.4	A.C.	Seeding
3	ea.	Adjust Manholes

CONTRACT SD-50
WOODCREST
Rochelle Avenue

420	C.Y.	Excavation
480	T.	Selected Borrow
345	T.	Water Bound Macadam Base
135	T.	Hot-Mix Asphaltic Conc.
4	C.Y.	Cement Concrete Pavement
960	L.F.	Integral Curb & Gutter
250	L.F.	Cement Concrete Sidewalk
670	S.Y.	Topsoil
0.14	A.	Seeding
1	ea.	Adjust Stone Monuments
2	ea.	Adjust Manholes
232	gal.	R.C.I. Tack Coat

Attention is called to the Special Provisions in the proposal, specifications and contract agreement.

Performance of contract shall commence within ten (10) days after execution of the contract and be completed as specified.

Monthly payments will be made for ninety (90) per cent of the construction completed each month.

Bidders must submit proposals upon forms provided by the County Engineer.

Each proposal must be accompanied by a surety bond, certified check, or money to the amount of at least ten (10) per centum of the total amount of the proposal.

The envelope containing the proposal must be marked "Suburban Development Contract No. —."

The Contract will be awarded or rejected within twenty (20) days from the date of opening proposals.

The right is reserved to reject any or all bids.

Complete sets of plans and specifications may be obtained from the County Engineer's Office, upon receipt of two dollars ($2.00) for each contract, which amount will not be refunded.

Make checks payable to the Levy Court of New Castle County.

LEVY COURT OF NEW CASTLE COUNTY
BY: JOHN TAYLOR
COUNTY ENGINEER

Bids: May 21, 1953

Resurfacing a Portion Wiltsie Street, Naval Reserve Shipyard Area—Port Newark Marine Terminal

THE PORT OF NEW YORK AUTHORITY
CONTRACT O & M-183

Sealed proposals for furnishing all labor, material and equipment to repave a portion of Wiltsie Street, Naval Reserve Shipyard Area, Port Newark Marine Terminal, South Dock and Terminal Streets, Newark, N. J., will be received at the office of the Director of Purchase of The Port of New York Authority, Room 900, 111-8th Ave., New York 11, until 10:00 A.M. (E.D.S.T.) on the morning of Thursday, May 21, 1953, at which time and place said proposals will be publicly opened and read.

Contract documents may be obtained upon request at the office of the Director of Purchase.

THE PORT OF NEW YORK AUTHORITY
Howard S. Cullman, Chairman
New York, New York

Bids: May 19, 1953

NOTICE IS HEREBY GIVEN that sealed bids will be received by the State Highway Commissioner for:

RT. 25 (1927) RT. U. S. 1 & 9-TRUCK (1953), SEC. 38A

Route 25 (1927)-Route U. S. 1 and 9-Truck (1953), Section 38A, Paving, Hackensack River Bridge Approaches, in the Town of Kearny and the City of Jersey City, Hudson County, Federal Project No. AU-192(3). Length 1.085 miles. The principal items of construction are

Estimated:

8,352	cu. yds.	Roadway Excavation—Unclassified
13,016	sq. yds.	Pavement Excavation
67,267	cu. yds.	Borrow Excavation
26,354	sq. yds.	8" Macadam Base Course
26,354	sq. yds.	Pavement, Type CA-BC-1 and 2
12,946	sq. yds.	10" Rein. Concrete Pavement
2,428	lin. ft.	Rein. Concrete Pipe
39		Inlets
23,170	lin. ft.	White Concrete Curb
3,258	lin. ft.	Wrought Iron Pipe (Electrical Conduit)
33		Junction Boxes (Electrical)

Bids for the above will be received at the office of the State Highway Department, Assembly Room, 140, in the State Highway Office Building, 1035 Parkway Avenue, Trenton, New Jersey, on Tuesday, May 19, 1953, at ten o'clock (10:00 A.M.—EASTERN STANDARD TIME), eleven o'clock (11:00 A.M.—DAYLIGHT SAVING TIME), and will be opened and read immediately thereafter.

The receipt and opening of bids is subject to the proper qualification of the bidder in accordance with the provisions of the prequalification law and the regulations adopted by the State Highway Commissioner. Bidders must also submit a revised financial statement and statement of plant and equipment with their bid.

NOTE: The proposed project is a "Federal Aid Project" authorized by the provisions of Title 27 of the Revised Statutes of New Jersey and supplements and by P. L. 769, 81st Congress, and is to be performed in accordance with the special provisions and requirements of the Bureau of Public Roads, Department of Commerce, as outlined in the specifications, which provisions require that labor be employed from lists furnished by the N. J. State Employment Service, 363 Summit Avenue, Jersey City, N. J., or 309 Washington Street, Newark, N. J. The attention of bidders is directed to the special provisions covering subletting or assigning the contract. The minimum wage paid to all common labor employed on this contract shall be $0.75 per hour. The minimum wage paid to all intermediate grade of labor employed on this contract shall be $1.00 per hour. The minimum wage paid to all skilled labor employed on this contract shall be $1.50 per hour.

Drawings, specifications and form of bid, contract and bond for the proposed work are on file in the office of the State Highway Department, Trenton, N. J., and may be inspected by prospective bidders during office hours. Plans will be furnished on a deposit of Ten Dollars ($10.00) for each set of plans upon appilcation to A. Lee Grover, Chief Clerk, State Highway Department, Room 139, State Highway Office Building, 1035 Parkway Avenue, Trenton, N. J. Bids must be made upon the Standard proposal forms in the manner designated in the standard State Highway specifications and must be enclosed in sealed special addressed envelopes bearing the name and address of the bidder and work bid upon on the outside, and must be accompanied by a certified check drawn to the order of the Treasurer of the State of New Jersey for not less than ten percent (10%) of the amount of the bid, provided that the said certified check shall not be less than $500.00 nor more than $20,000.00 and must be delivered at the above place on or before the hour named. Copies of the standard proposal forms and special addressed envelopes will be furnished on application. Bids not enclosed in sealed special addressed envelopes will be considered informal and will not be opened. The right is reserved to reject any or all bids.

Signed: R. J. Abbott
State Highway Commissioner

(Additional Proposals on pages 104 and 105)

CONTRACTORS
WATCH
THIS SECTION
for New Projects
Publish your announcements thru the "Proposal Section" of Engineering News-Record and get their bids.

STRUCTURAL STEEL SALES ENGINEER

Exceptional opportunity for a thoroughly experienced structural engineer who can estimate & sell structural steel for all types of buildings, fabricated & erected.

Plant is long established, has large capacity, located in metro N. Y. area. State experience & salary for personal interview at our expense.

SW-7520, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITIONS VACANT

CONSTRUCTION SUPT.—Thoroughly experienced in pile driving and bridge construction. Only exceptionally qualified men need apply. Give age, detailed record, references and salary. Middle east location. P-7636, Engineering News-Record.

QUANTITY SURVEY Engineer for Plumbing Contractors office, experienced man capable of assuming responsibility for both estimating and supervising installation of plumbing and associated work on all types of projects. This is an exceptional opportunity for the right man with an old established Plumbing concern in Connecticut. When replying, state experience, references, education, marital status and salary details. P-7603, Engineering News-Record.

COMPUTOR, DRAFTSMAN and general office man, experience in subdivision and property surveys for an 88 year old firm. Joyce Company, 802 Chestnut St., St. Louis, Mo.

WANTED GENERAL Foreman or Superintendent in Philadelphia and vicinity. Must be experienced in cofferdam and concrete outfall and reconstruction of sewers. State salary, experience and when available. P-7651, Engineering News-Record.

ESTIMATOR—PERMANENT position in Central New Jersey experienced on Miscellaneous Steel and Plate Work. Advise qualifications, past employment and salary expected. Write P-7670, Engineering News-Record.

HELP WANTED—Men. Engineer by trade association in Washington, D. C. Construction experience preferred. Write giving experience, references, salary expected to P-7819, Engineering News-Record.

ENGINEER - SUPERINTENDENT: — Northeastern Pennsylvania construction company requires services of experienced highway construction engineer who is capable of preparing estimates and of supervising construction. Reply giving name, address, age, education, experience, salary desired and date of availability. P-7776, Engineering News-Record.

WANTED STRUCTURAL Engineer: Salary range $5,044-$5,876 per annum. To examine structural plans, both steel and reinforced concrete submitted for building permits. Must have 5 years' experience. For details write: Personnel Department, Municipal Building, Hartford, Connecticut.

SUPERINTENDENT—WANTED by the City of New London, Connecticut, for Incinerator and Sewage Treatment Plant. Salary $5,200.00. Apply Director of Public Works.

SALES ENGINEER, for selling Water Conditioning Equipment to industries, engineering firms and municipalities. Salary and commission $10,000 to $15,000 per year. Positions open in southern and eastern United States. Mail application to J. P. Lawler, President, General Filter Company, Ames, Iowa.

STRUCTURAL STEEL Designer wanted by a leading Middle West Fabricator—Experienced on industrial and commercial building. Permanent position and excellent oportunity with a large and established and growing company. Please state qualifications, past experience and salary requirements. P-7802, Engineering News-Record.

CONSTRUCTION SUPT., N. Y. public works. Must be pusher. Good salary & future. Replies strictly confidential. Complete resume to P-7680, Engineering News-Record.

TEACHING POSITION—Engineering graduate, Industrial and teaching experience desirable. Opportunity to work on advanced degree. Salary depends upon qualifications. Write: Head, Department of Engineering Drawing, Iowa State College, Ames, Iowa.

WANTED

Men to sell heavy construction machinery in the metropolitan New York area.

Salary - Commission - Expenses

Must have an engineering or mechanical background or practical selling experience in construction equipment.

Prefer ages from 27 to 35 years, metropolitan New York residence.

Call: NEwtown 9-7777, extension 11 for an appointment.

THE JAEGER LEMBO MACHINE CORP.
Northern Blvd & 127th Street
Flushing 52, L. I., N. Y.

CONCRETE PIPE SUPERINTENDENTS CAST SUPERINTENDENTS

First class opportunity with a financially well-established national organization. Require high calibre, experienced men who can supervise manufacturing operations, take complete charge of large field projects.

P-7707, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SALARIED POSITIONS $3,500—$35,000

We offer the original personal employment service (established 43 years.) Procedure of highest ethical standards is individualized to your personal requirements. Identity covered; present position protected. Ask for particulars.

R. W. BIXBY, Inc., 272 Dun Bldg., Buffalo 2, N. Y.

POSITIONS VACANT

TRANSIT MAN—For inside and outside work. Must have thorough knowledge of engineering, drafting and calculating, and be thoroughly familiar with deed and conveyance work, and tax maps. Apply—Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone Wo 8-1200, Extension 7.

CHIEF OF Party—Must be capable of handling survey parties and have thorough understanding of survey work pertaining to rights of way, curb and street line, sanitary and storm sewer surveys, and a thorough knowledge of general survey work. Apply—Howard Madison, Township Engineer, 1 Main Street, Woodbridge, N. J. Phone Wo 8-1200, Extension 7.

PURCHASING AGENT—Company engaged in general contracting, ready-mix concrete, building materials, and concrete block manufacturing. Location: North Georgia. Reply stating experience, education, age and salary requirements within application. P-7705, Engineering News-Record.

SELLING OPPORTUNITIES OFFERED

SURVEYING INSTRUMENTS—Sales Representatives sought by century-old firm now launching strong sales push in Construction and Aircraft industries. Advertising program already under way. Many desirable territories open: New York, Middle Atlantic, South, West, Central, Pacific Coast. Finest quality instruments, used in 58 countries. Men may carry other line, if non-conflicting. Salary plus liberal commission. Write at once—replies held in strict confidence. RW-7803, Engineering News-Record.

SALES ENGINEERS—Several territories in Mid-Atlantic States with established National concern selling prefabricated metal products to engineering and construction markets. Positions offered are permanent and present excellent future with aggressive, progressive and expanding organization. Engineering degree desirable. Previous sales experience unnecessary. Ages 24 to 30. RW-7778, Engineering News-Record.

SALES AGENCY offered to man now contacting architects and industrials for product specifications. This proven item in the construction line now successfully handled as sideline by such persons. $250,000 yearly potential in industrial areas. Straight 5% commission with complete protection. Liberal manufacturer aid via published advertising and direct mail. Many choice territories still available. RW-7721, Engineering News-Record.

ACTIVE AND experienced salesman required in heavy construction equipment. To cover Albany, N. Y. area including seven or eight adjoining Counties. Remuneration commensurate with efforts and ability. Man required now. Application will be held in confidence. SW-7801, Engineering News-Record.

(Continued on the following page)

ENGINEERS and DESIGNERS

With experience applicable to Oil Refinery, Blast Furnace or Steel Plant Design.

Permanent positions
Overtime—45 hour week
No age limitations

Openings available at our Cleveland, Ohio, office for:

Piping Designers
Structural Designers
Concrete Designers
Pressure Vessel Designers
Instrument Specifications Engineers
Equipment Specifications Engineers

These openings offer:

Top hourly rates
Annual Profit-Sharing Bonus

Write, giving complete background and experience to:

ARTHUR G. McKEE & CO.
2300 Chester Ave. Cleveland 1, Ohio

SUPERINTENDENTS

with substantial experience in

CONCRETE PIPE PRODUCTION

Nationally known producer of concrete pipe offers several exceptional permanent positions to experienced field men capable of supervising manufacture of concrete pressure and non pressure pipe throughout the United States. Also several openings for top-notch master mechanics preferably with previous experience on pipe machinery.

This reputable, well established Company is prepared to offer to the right men lifelong secure positions, unparalleled opportunities for growth, personal recognition for individual accomplishments, generous company benefits in addition to high starting wages.

Only men eager and able to get results need apply.

P-7597, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SANITARY ENGINEER

Chief Sanitary Engineer to assume complete charge of department handling water supply, treatment and distribution and sewage collection and treatment projects for a down-state Illinois, well established, financially stable firm of Consulting Engineers. Must have ten years' experience and be licensed Structural Engineer in Illinois or able to be so licensed quickly. Starting salary $10,000 and up to attract highly qualified engineer. Send full details on experience and training in first letter. Photo optional. Replies will be treated confidentially. Principal will interview applicants anywhere.

P-7632, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

SENIOR STRUCTURAL ENGINEER

Age 35-45. Degree required.

Minimum ten years experience in design of bridges and heavy reinforced concrete structures. Previous experience in supervisory position essential.

STRUCTURAL DESIGNERS

Age 30-40. Degree required.

Minimum six years experience design of bridges and heavy reinforced concrete structures.

40-hour week

Paid Vacation

Paid Hospitalization and Insurance Program

Paid Company Retirement Program

Submit complete resume of education and experience, salary requirement, references, and availability date with first letter.

P-7704, Engineering News-Record
330 W. 42nd St., New York 36, N. Y.

DAM ENGINEERS, experienced in the design and construction of earth dams, preferably with a working knowledge of soil mechanics, concrete control, and hydrology for the preparation and review of plans and specifications. Duties will include report writing, field investigations and inspections. Some travel and public relations.

HYDRAULIC ENGINEERS with minimum of three years experience in hydrology and hydraulics of water control structures and waterways.

CONSTRUCTION ENGINEERS. One to supervise concrete control and inspection on channel improvement project involving above 9000 cubic yards of concrete. Field experience in concrete construction required. Two to supervise contract inspection on channel improvement and levee construction projects. Field experience in earth construction required.

LOCATION. Pennsylvania. Give full details of experience, education, age, salary expected and references.

ADDRESS replies to

P-7763, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

ENGINEERS - GEOLOGISTS

Technicians Experienced in Soils—Concrete and Asphalt Control Work.

Also

Graduate Engineers with P.E. Registration having extensive experience in Soils—Concrete and Asphalt. Location in Midwest.

P-7799, Engineering News-Record
520 N. Michigan Ave., Chicago 11, Ill.

ENGINEERS

Structural, mechanical, and electrical for work on hydro-electric power developments. Write giving full experience record and qualifications.

HARZA ENGINEERING COMPANY
400 West Madison Street Chicago, Illinois

WANTED

GENERAL SUPERINTENDENT

Qualified to take charge of field operations in industrial building department with General Contractor operating in the Southeastern States. Annual volume of business in excess of 25 million. Applicant must be a graduate engineer with good personality, able to conduct business with clients and have successful record as superintendent on heavy industrial construction and installation of equipment, with experience on Pulp and Paper Mills, Cement and Fertilizer Plants. Excellent salary.

P-7631, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

DESIGN DRAFTSMAN PRESTRESSED CONCRETE

Experience in detailing reinforced concrete required.

P-7808, ENGINEERING NEWS RECORD
330 W. 42 St. New York 36, N. Y.

Estimator

CONSTRUCTION

. . . excellent opportunity is presently available for a construction estimator to prepare cost estimates & check bids on new & existing refinery installations. Must have minimum 2 years mechanical engineering training, plus thorough experience in contracting & industrial construction. This is a permanent position within our Engineering & Construction Department. Starting salary $6000. per year, liberal employee benefits, and opportunity for advancement on merit. Send complete resume to—

T-93, P. O. BOX 3575
PHILA. 22, PA.

RESIDENT ENGINEER

To be responsible head of field organization for supervision of construction of large vertical lift bridge in Western New York. Must have experience on movable bridges. Immediate availability desirable. Salary open. Submit complete resume of training, experience, qualifications, and references so that appointment for personal interview can be arranged.

Box 473 BUFFALO 5, NEW YORK

WANTED

An Alert Mechanical Engineer with Some Knowledge of Electrical Engineering . . . Must Be a Good Calculator . . .

PHILIPS & DAVIES, INC.
KENTON, OHIO

WANTED

OFFICE ENGINEER

Permanent Position in Contractor's Office in Central N. Y. Material Take-off, Purchasing, and Scheduling for Heavy Construction Projects. Ability to Estimate Heavy Construction Work desirable.

P-7800, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

(Continued from preceding page)

EMPLOYMENT SERVICE

WANTED-ENGINEERS. Designers, Draftsmen. Structural, Piping, M.E., C.E., E.E. and Industrial, also Teachers and Chemists. Cleveland Engineering Agency, 2132 E. 9, Cleveland.

POSITIONS WANTED

EXPERIENCED ARCHITECT'S Superintendent available June 1st desires position within 100 mile radius of Philadelphia, Pa. PW-7525, Engineering News-Record.

CIVIL ENGINEER, 28, married, veteran, B.S.C.E., M.S. Soil Mechanics; 3 years experience for consulting engineers in foundation, structural and architectural design, some experience construction. Desires responsible position with future in management with contractor or in allied field. Northeast preferred. PW-7825, Engineering News-Record.

CONSTRUCTION EXECUTIVE: 47, New York Registration, with wide experience in planning, coordinating and directing the construction of industrials, public works and transportation facilities for contractors and engineers in a management capacity, is interested in a career job within the continental U. S. PW-7824, Engineering News-Record.

DRAFTSMAN, HIGHWAY Plans, curve sub'd., compute, layout abstractor, surveyor, right of way eng'r., descriptions, deeds, conceyancing, ability make contacts with public. Field Eng'r. 28 yrs. experience. PW-7822, Engineering News-Record.

EXPERIENCED ON heavy construction, structural steel, mechanical, including mass concrete foundations, Hydro-electric power plants, etc. Presently associated with a National Contractor specializing in Marine construction, Industrial, petroleum, and chemical plants. Excellent reference as construction managers and administrators. More than ten years experience on large government, and Private industry contracts, domestic and foreign: C.E. graduates. Will consider responsible foreign assignment preferably as a team. Have top flight personnel for engineering and construction positions. This is a live wire organization that meets their schedules, cost estimates, and gets your job done. Excellent labor relations on past projects. Will to contract as Customers production or inspection team, or will contract Construction Management and procurement on any large scale project. References from satisfied customers. PW-7751, Engineering News-Record.

CONSTRUCTION SUPERINTENDENT, concrete pipe manufacturer, considerable experience. PW-7731, Engineering News-Record.

ENGINEER - ESTIMATOR, Civil Engineer Grad., Age 34. Have 10 years field and estimating experience in buildings and heavy construction. Desire position as estimator in established firm. PW-7737, Engineering News-Record.

ROCK SUPT.—quarry production manager—thoroughly experienced all phases commercial quarry operation from stripping to handling of finished product be it derrick stone, riprap, aggregate or dust. "Thru-way Contractors" with heavy rock cuts could use my experience to good advantage. 48 yrs. old, married, available immediately, location immaterial if inducements are right. PW-7752, Engineering News-Record.

CAMP STEWARD, a practical man, has been trained as cook, baker, chef and steward. 58 years of age, single, strictly sober. Working at present but wish a change. PW-7753, Engineering News-Record.

POSITION WANTED—Construction Superintendent, over 25 years of experience. Superintendent for last 16 years in heavy, marine and concrete construction. Exceptionally qualified in waterfront construction and rehabilitation. Best of references—age 47. Employment location not important. PW-7775, Engineering News-Record.

(Continued on opposite page)

PROJECT MANAGER—ENGINEER

Registered Graduate Civil Engineer, 47, single, good health and habits. Able to associate and deal with top level your and your clients' organization. At present employed on multi-million dollar project in very responsible management position. Have owned and operated own construction business for past 16 years. Experienced in design and construction refineries, pipe lines, steel and concrete structures, heavy construction, sewage treatment plants, sanitary and storm sewers. Also highway construction, asphalt surfacing, housing projects and land development.

Highly regarded by present employer for planning work, meeting schedules, being cost conscious and getting work done. Present employer (one of largest in field) has plans for me in future but present yearly salary of $12,000 plus not attractive.
Foreign service considered. Salary open to negotiations, prefer salary and bonus based on ability to produce.

PW-7759, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

STRUCTURAL ENGINEERING
ARCHITECTURAL ENGINEERING
OUR COURSES of instruction by mail HAVE HELPED THOUSANDS to better positions and to pass State Board Examinations. ***Forty-third year. Write today.***
WILSON *Engineering Corp.*
College House Offices—HARVARD SQUARE, CAMBRIDGE, MASS.

SUPERINTENDENTS AND PROJECT MANAGERS TRAINING COURSE
All instructions by mail. Send today for sample lesson and complete details
Geo. E. Deatherage & Son, Dept. 101
411 S. 5th Ave. Lake Worth, Florida

POSITIONS WANTED

(Continued from opposite page)

PROJECT MANAGER with 20 years experience on power plants, water treatment plants, heavy industrial buildings and water front work. Will accept either foreign or domestic assignment. Excellent references. Available short notice. PW-7777, Engineering News-Record.

POSITION WANTED. Superintendent. 25 years construction experience, bridges, dams, treatment plants, pumping stations, concrete structures, sewer and water systems, heavy excavation, water front work, etc. Just off eleven million dollar warehouse job. Good organizer, know men and equipment. Familiar with labor and material costs and distribution. Reference upon request. Any location. Available immediately. PW-7022, Engineering News-Record.

ENGINEER—CIVIL, with some training in M.E. and accounting; presently a 2nd year law student. Young, willing to learn. Veteran; construction my first interest, but have inquiring mind. Try me out this summer, and if you are satisfied of the need in your organization for one with these somewhat unique qualifications, we might arrange future, but you are not obligated. PW-7798, Engineering News-Record.

CIVIL ENGINEER-graduate, registered. Fifteen years exp. in design, spec. and plan review, and adm. Desire position in adm. capacity. Min. $650. PW-7706, Engineering News-Record.

GENERAL SUPERINTENDENT — Graduate Engineer-Estimating, bidding, field supervision. Commercial, industrial and residential buildings. Presently employed, desire change. PW-7684, Engineering News-Record.

CIVIL CONSTRUCTION. Irrigation & Drainage Engineer-Graduate Engineer. Thirty-five years diversified and progressive experience in technical administration, planning, investigation and supervision over heavy construction works. Recently completed foreign assignment investigating a project in Central America. Interested in position with major construction company or consulting engineering firm. PW-7685, Engineering News-Record.

CHIEF AUDITOR — Assistant Controller — Twenty-five years experience on large heavy, industrial, ordnance, atomic, cost plus and other type construction projects. Executive ability to organize joint ventures, cost plus, finances, subcontracts and costs any size project. Top references and bond, now employed, available inside thirty days. PW-7658, Engineering News-Record.

ENGINEER-ESTIMATOR, 1946 Civil E. graduate, registered professional engineer. Experience estimating, construction, costs, structural design. Desire position in Florida or South-East. Present salary, $6900. PW-7660, Engineering News-Record.

OHIO LICENSED Construction Engineer. Thirty years experience. Prefer Sewage or Water Plant Construction. Available May 15th. PW-7669, Engineering News-Record.

SELLING OPPORTUNITIES WANTED

HOW MUCH of your building materials and equipment must I sell to earn $20,000 a year? Wide valuable connections. RA-7771, Engineering News-Record.

WANTED SELLING opportunity construction equipment and/or supplies. 15 years construction experience, presently employed construction supt. Age 39. Prefer Wash., D. C., Baltimore Area. SA-7823, Engineering News-Record.

PART TIME WORK WANTED

STRUCTURAL ENGINEER, licensed, 25 years buildings, foundations, industrial plants, waterfront structures, desires part time work. PTWW-7709, Engineering News-Record.

BUSINESS OPPORTUNITY

Active Civil Engineering and Surveying Practice for sale to competent party. Fast growing central Florida coastal city. Vicinity population 50,000. Office, Records and equipment complete. Owner must retire account health. BO-7696, Engineering News-Record.

• WANTED •
INDUSTRIAL PLANTS

Will arrange thru purchase of (1) Capital stock, (2) Assets, (3) Machinery and equipment, whole or in part—Personnel usually retained, strict confidence. **Box 1351,** Church St. Sta., New York 8, N. Y.

WANTED

2000 lin. ft. to 3000 lin. ft. of 15" concrete paving forms. Also ½ to ¾ yard truck crane. Would like to rent with option to purchase. Guarantee minimum of 5 months.

W-7779, Engineering News-Record
330 W. 42 St., New York 36, N. Y.

SURVEYING INSTRUMENTS
USED • REBUILT • SALE
RENT • REPAIRING

TRANSITS and LEVELS

NEW OR REBUILT
SALE OR RENT
HEADQUARTERS FOR REPAIRS — *any make*

We will buy or trade in old Transits, Levels, Alidades, etc. Send instruments for valuation.

Write for Catalog NR-35 of new engineering Instruments, Engineering Field Equipment and Drafting Room supplies and NRL-35 for list of *rebuilt* instruments.

WARREN-KNIGHT CO.
Mfrs. of Transits & Levels
136 N. 12th St. · Philadelphia, 7 Pa.

GURLEY **REPAIR SERVICE**

• Send your Gurley instrument to the factory for repair, rebuilding, adjustment, or service. Genuine Gurley parts, properly fitted, available from stock. Factory workmanship and equipment. Estimates submitted. Shipping box furnished free on request.

W. & L. E. GURLEY
540 Fulton Street, Troy, N. Y.
→ Write for leaflet "Gurley Repair Service"

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RE-BUILT
REPAIR
RENT
REAL EXPERTS
BUFF

69 Dey St., New York

One (1) Good Roads No. 16 Champion 16" x 36" Jaw Crusher, very good condition.
One (1) Westinghouse 100 H.P., 440 Volt 60 cycle, 3 phase, 870 R.P.M. Motor and accessory equipment. *May be seen at:*
CITY QUARRY, Watertown, New York
Contact: Ray W. Howard, Superintendent of Public Works.

WANTED
20 or 25 Ton Truck Crane
30 Ton Diesel Locomotive Crane
45 Ton Diesel Electric Locomotive
B. M. WEISS COMPANY
Girard Trust Company Bldg. Philadelphia 2, Pa.

WANTED
Model 85 or 95 APSCO all purpose SPREADER
Late model—priced right—in good condition
AL J. GOODMAN
P. O. Box 263 Asheville, N. C.
Day Phone: 3-6456 Nite: 5668

Our Craftsmen do
INSTRUMENT REPAIR AND OVERHAUL

- **Complete department—handles all makes.**
- **Experienced craftsmen do all work.**
- **Includes thorough overhaul, cleaning, oiling and adjustment.**
- **Precision work guaranteed.**

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317 W. Court St. • Milwaukee 12, Wis.

INSTRUMENTS FOR RENT

We rent transits and levels on a monthly or yearly basis. Reasonable rates. All instruments are fully guaranteed in first class working order.

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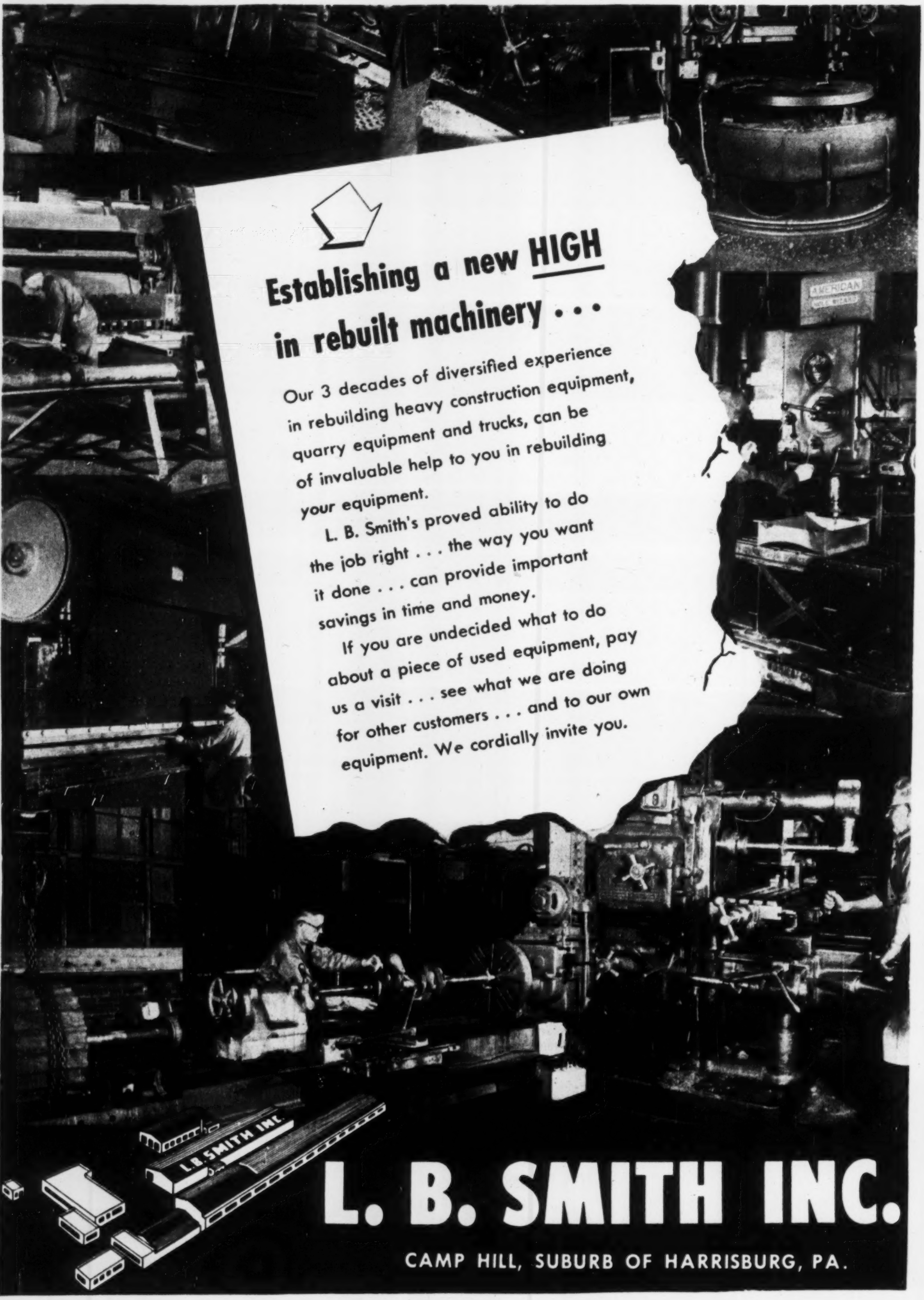
317 W. Court St. • Milwaukee 12, Wis.

FROM STOCK
Brand New & Rebuilt
TRANSITS & LEVELS
Fully equipped modern shop—all makes and models repaired — all work guaranteed — instruments rented
Midwest Representative: W. & L. E. Gurley
NATIONAL BLUE PRINT CO.
Established 1914.
210 S. Canal St. Chicago (6), Ill.

SPECIALIZED REBUILDING
of surveying and engineering instruments
All makes and models expertly repaired in modern shop. All work guaranteed
USED REBUILT INSTRUMENTS
for sale or rent
ROY D. HICKERSON
8 N. EDMONDSON AVE. INDIANAPOLIS 19, IND.



Establishing a new HIGH in rebuilt machinery . . .

Our 3 decades of diversified experience in rebuilding heavy construction equipment, quarry equipment and trucks, can be of invaluable help to you in rebuilding your equipment.

L. B. Smith's proved ability to do the job right . . . the way you want it done . . . can provide important savings in time and money.

If you are undecided what to do about a piece of used equipment, pay us a visit . . . see what we are doing for other customers . . . and to our own equipment. We cordially invite you.

L. B. SMITH INC.

CAMP HILL, SUBURB OF HARRISBURG, PA.

L. B. SMITH INC.

New and Used Equipment News

Prepared Monthly by Ed Woolford at Camp Hill, Pa.

VOL. 2 NO. 1

AIR COMPRESSORS

Gardner-Denver 500 cu. ft. diesel, new condition.
Gardner-Denver 500 cu. ft. diesel, good operating condition.
Gardner-Denver 365 cu. ft. diesel.
Worthington two-stage, water-cooled, vertical 250#, 60 CFM, new condition.
Paving breakers, jackhammers, wagon drills, tie tampers.

QUARRY EQUIPMENT & BINS

2036 Cedarapids AAA primary unit on rubber, diesel power. Rebuilt.
1036/2418 Cedarapids Jr. Tandem unit on rubber.
Cedarapids Rock-It plant w/2025 jaw, 3033 hammermill. New.
1236 Cedarapids Model 6C plant. New.
4033 Cedarapids Model 6C plant. New.
2020 Cedarapids double impeller. New condition.
4024 Cedarapids roll. Rebuilt.
3018 Cedarapids roll. Rebuilt.
1236 Cedarapids twin jaw crusher. New.
1036 Cedarapids jaw. Rebuilt.
10x7 Allis Chalmers lake type jaw crusher. Rebuilt.
B-3 Jeffrey swing hammer pulverizer. Rebuilt.
60" dia. x 14' long Traylor revolving screen. Rebuilt.
24" Wemco single pitch sand screw. New condition.
15 cu. yd. Cedarapids sand drag. New.
16" x 90' bucket elevator.
60-ton, 2-compartment, 8' x 18' storage bin w/clam gates.
100-ton, 2 compartment, 13'x23' storage bin.
Special bins to your specifications.
Conveyors—18"—24"—30"—36". Also belt.
24" Dia. x 36" face magnetic pulley.

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27FD Euclid rear dumps.
1½-ton Ford with any body.
2000-gallon tanks on semi-trailer mounting.
New and rebuilt dump bodies.

GENERATORS & LIGHT PLANTS

1½ KW to 125 KW, alternating and direct current gasoline and diesel powered.

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Lorain L-82, 2-yd. diesel.
Lorain 77, 1½-yd. diesel.
Lorain 75B, 1¼-yd. diesel.
Lorain 57, 1¼ yd. diesel, rebuilt.
Lorain L-50-1, 1-yd. diesel.
Lorain 40 truck crane on Mack 3-axle truck.
Link Belt LS85 diesel combination.
Unit 514, ½-yd. gasoline crawler shovel, rebuilt.
Lorain 30A, ½-yd. gas combination.

SHOVEL & CRANE ATTACHMENTS

Lorain L-41 Chain Crowd Shovel Attachment. Rebuilt.
Lorain 40 Hi-Lift shovel attachment.
P&H 203 shovel attachment.
Chain crowd Lorain 30A shovel attachment.
Bucyrus-Erie 1½-yd. rock bucket.
McCaffrey Model 648 for 1¼ to 2-yd. crane.
McCaffrey Model 636 for ¾-yd. to 1-yd. crane.
Lorain 77 crane boom, 45'.

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Lorain 30 hoe attachment complete.
¾-yd. Lorain, 40, LBS #6105. 44" cutting width.
¾-yd. Amsco 40" cutting width, LBS #8101.

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1—45" Ohio lifting magnet, rebuilt.

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Lorain 41, ¾-yd. LBS #8600, rebuilt.
New Lima 1-yd. Amsco, LBS #2295.
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Lorain 75B, 1¼-yd. extended lip, 1¾-yd. LBS #2260.
Pettibone-Mulliken 2-yd. Lorain 82 or 820, manganese, LBS #5361.
Pettibone-Mulliken 2-yd. for 3500 Manitowoc LBS #5763.
Esco 2½-yd. cast weld dipper with bail & teeth.

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Blaw-Knox gas-electric finisher, 10½'-12½', rebuilt.
Koehring 10'-12' finishers, rebuilt.
Cleveland formgrader, new 1944 rebuilt.
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3-yd. Challenge high discharge mixer on International chassis.

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TD-24 International with Bucyrus-Erie angle-blade.
TD9 International diesel with 1 yd. Loadover.
Model CR Tournapull w/16-yd. Model E16 Tournarocker, rebuilt.

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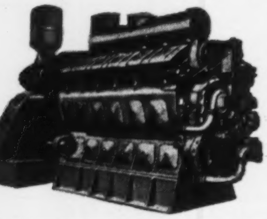

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1500	Fairbanks Morse	33E16	2000	300	300	General Motors	8-268A	450	1200
1136	Fairbanks Morse	38D	1600	720	250	Fairbanks Morse	37-E	375	360
1100	General Motors	16-278A	1600	720	200	General Motors	8-268A	350	900
750	General Motors	12-567	1080	720	150	Worthington	CC-4	225	450
500	Baldwin	VO-8	750	514	150	Buckeye	80	240	600
500	General Motors	8-278A	750	720	100	Worthington	BB-5	150	600
500	General Motors	8-567	720	720	100	General Motors	3-268A	150	1200
400	Ingersoll-Rand	8-8	600	720	60	General Motors	6-71	90	1200
350	Baldwin	VO-6	510	450	30	Internat'l Harvester	UD-14	45	1200

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- 1—60 K.W. Diesel Generators
- 3—500 c.f.m. Ingersoll-Rand Portable Compressors
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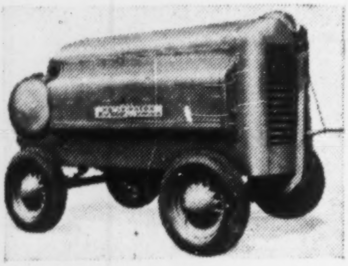

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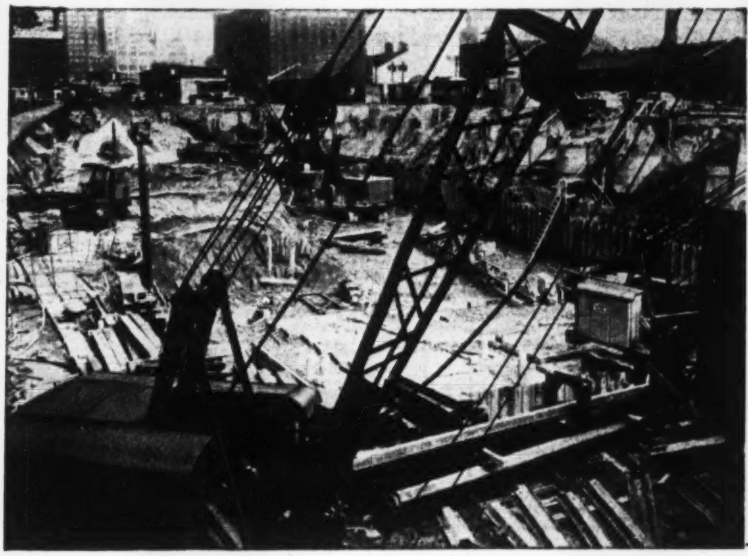

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Chicago Sun-Times Photo

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500 cu. ft. Ing. Rand Mdl. K-500, powered by Waukesha-Hesselman Diesel or Waukesha gas engines, on steel wheels or pneu. tires.

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160 cu. ft. Ing. Rand #185-A-303, 4 cyl. Waukesha gas engr., 4 steel wheels. Bargain—Only $600.00.

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125 HP Pennsylvania loco. type, self-contained, 125#, Nat'l. Board, steel skids, excel. condition.

80 HP American, 130#, Nat'l. Board, THS 768 sq.ft. Leahy oil fired. Vertical type.

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30 ton Wiley Mdl. F 60-80-100' boom, rated 30 ton @ 38', 15 ton @ 57'.

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CRAWLER CRANES and SHOVEL

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#3 Northwest Crawler Crane, Ser. 4603, with generator and complete for magnet work but without magnet.

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1—¼ yd. Bucyrus Erie Mdl. 33-B, Ser. 16502, 8 cyl. "V" type LeRoi gas eng. (eng. new 1948), 50' boom.

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75 KW Diesel AC Generator, 220/440/60/3, power Cat. D-13000 Diesel eng., with gas starting eng. & control panels. Generator completely rewound. LATE MODEL. SAVE THOUSANDS OF $$$$$ FROM COST NEW PRICE.

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20 Ton 6" LB 4.4# x 40'
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100 Tons 10" H 49#
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Lorain 40 shovel
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P&H 855-8 1½ yd. Shovel-Crane-Drag. Diesel.
Lorain Mod. Mc-414 Moto-Crane 70 ft. Boom.

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3 Cat. D-8 Tractors, 2U series, Rebuilt.
4 Cat. D7 and 3 Cat. D6. Late type, rebuilt.
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Large plant 212 yds., 6 compt., agg. and cement elevators, 56-S Mixer. Excellent.
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Of the hundred or more things that affect the life of hauling equipment, one of the more important is the amount of shock and vibration delivered through the springs to the frame and body. Such shock effect on equipment is reported to be considerably reduced with a new air-rubber suspension system, developed by General Tire and Rubber Co.

Normally, if a truck or trailer is loaded unevenly, the heavier side of the trailer sags, reducing the amount of clearance between the axles and the truck bed. It may even cause the conventional spring to "bottom" and bounce if the truck is driven over rough terrain.

The air spring, however, maintains constant clearance between truck and axles and, in addition spreads road shocks over 5½ ft. of the truck frame rather than concentrating these body blows on a few suspension points. This dispersal and distribution is said to soften the ride considerably and also lessen the maintenance requirements of the entire vehicle.

Further, the system is reported to reduce tire wear by keeping truck and trailer floors parallel with the axles regardless of shifting loads, misloading or high-crown roads.

The spring consists of two pneumatic tubes between the axles and the truck frame. As the truck is loaded the tubes compress until a predetermined level is reached. At this point, a switch is automatically actuated and air is forced into the tubes from a compressor system. When enough air has been injected to maintain the proper clearance between frame and axles, the switch is released and the air supply is shut off. The action is reversed during unloading.

The adjusting action takes place not only during loading and unloading but at all times that the truck is in operation. For instance, should the load shift during transport or if the truck is driven onto a high-crown road, sufficient air is added or bled from the proper spring to maintain the truck or trailer floor parallel with the axles.

In case of damage to the air system, rubber shock pads within the spring take over, enabling the driver to continue to the shop for repairs. In addition, all the air may be released from the spring to permit the truck to slip under low clearances.

The air spring units currently in production have been designed to replace conventional suspension methods on tandem dual axles only. Still in the testing stage are adaptations of the spring for single-axle trucks, tractors, trailers and other uses. Under other uses comes the possibility that truck cranes could be kept level during operation by installing these self-adjusting springs on the outriggers.

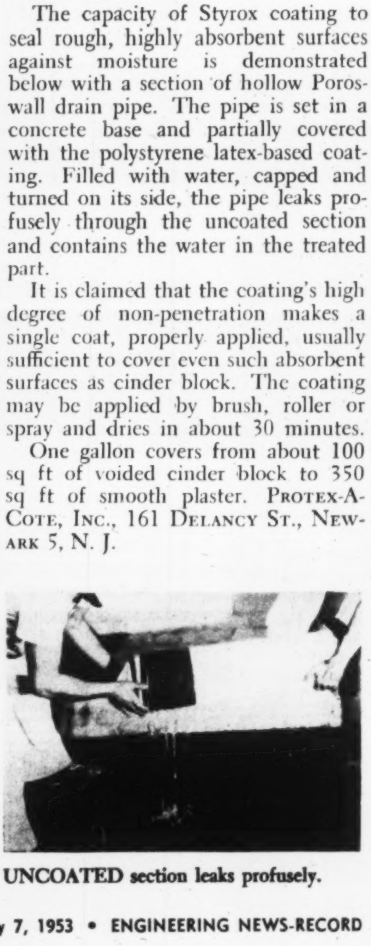
The air spring is now available to all vehicle and suspension manufacturers for design into complete suspensions. THE GENERAL TIRE AND RUBBER COMPANY, AKRON, OHIO.

Moisture seal for porous masonry surfaces

The capacity of Styrox coating to seal rough, highly absorbent surfaces against moisture is demonstrated below with a section of hollow Poroswall drain pipe. The pipe is set in a concrete base and partially covered with the polystyrene latex-based coating. Filled with water, capped and turned on its side, the pipe leaks profusely through the uncoated section and contains the water in the treated part.

It is claimed that the coating's high degree of non-penetration makes a single coat, properly applied, usually sufficient to cover even such absorbent surfaces as cinder block. The coating may be applied by brush, roller or spray and dries in about 30 minutes.

One gallon covers from about 100 sq ft of voided cinder block to 350 sq ft of smooth plaster. PROTEX-A-COTE, INC., 161 DELANCY ST., NEWARK 5, N. J.



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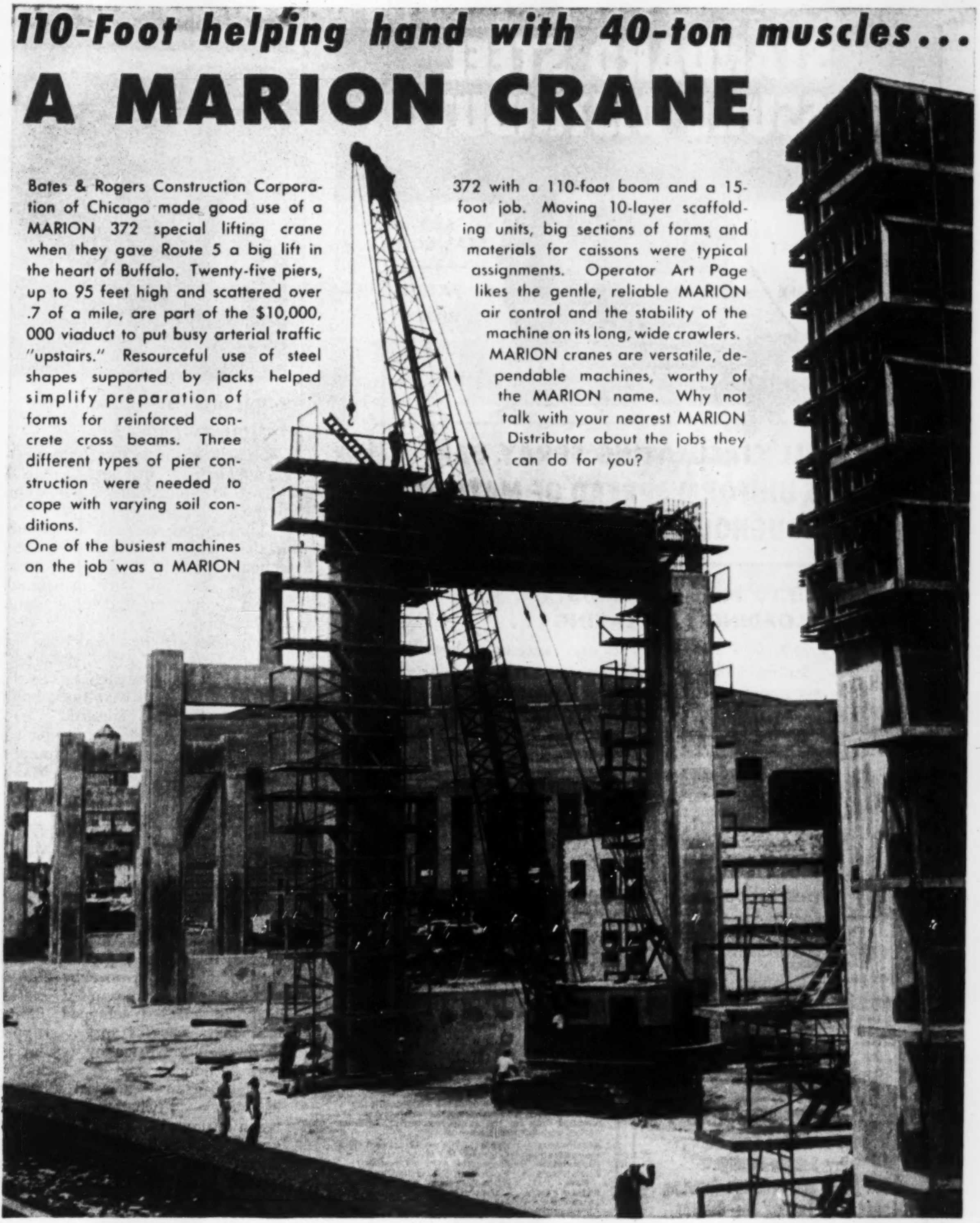

Bates & Rogers Construction Corporation of Chicago made good use of a MARION 372 special lifting crane when they gave Route 5 a big lift in the heart of Buffalo. Twenty-five piers, up to 95 feet high and scattered over .7 of a mile, are part of the $10,000,000 viaduct to put busy arterial traffic "upstairs." Resourceful use of steel shapes supported by jacks helped simplify preparation of forms for reinforced concrete cross beams. Three different types of pier construction were needed to cope with varying soil conditions.

One of the busiest machines on the job was a MARION 372 with a 110-foot boom and a 15-foot job. Moving 10-layer scaffolding units, big sections of forms and materials for caissons were typical assignments. Operator Art Page likes the gentle, reliable MARION air control and the stability of the machine on its long, wide crawlers.

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Angle iron guillotine for cutting corners

Straight, clean shearing with no end deformation is the key feature of Manco Manufacturing Co.'s new Guillotine angle iron cutter.

The unit is available in portable models with hand-pump hydraulic action for use in field erection work, and in electrically driven hydraulic pump models for production cutting applications.

Capacity of the Model A-20-B, shown above, is 3″ x 3″ x ¼″ or 2½″ x 2½″ x 5/16″. The manufacturer says that the cutter does not have to be bolted down or otherwise mounted.

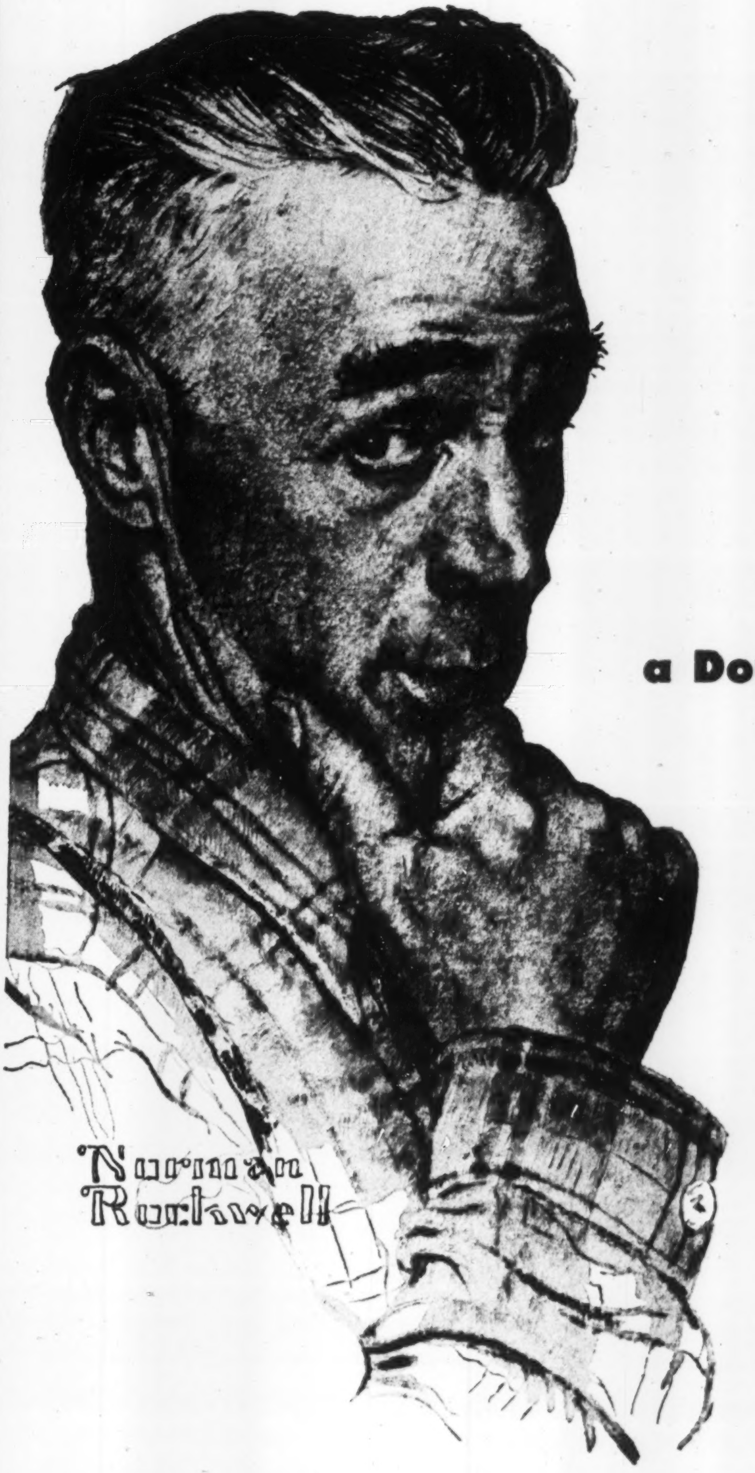
Adaptations of these units for cutting special shapes such as channel or H-beams are also available. MANCO MANUFACTURING COMPANY, BRADLEY, ILL.

Paint stripping method cuts costs

It is common practice for road building equipment to be repainted again and again without removing previous paint coats. Even if the paints are not hard to remove by ordinary methods, the condition of mutiple coats of cracked, chipped finishes ultimately calls for special stripping methods if a satisfactory repaint job is to be done.

The Magnus Chemical Company has developed what it considers to be an improved method for removing multiple coats of paint. The stripping operation consists of flowing on the painted surface a boiling solution of 61CF, an alkaline cleaner manufactured by the company. This is followed after drying by a steam gun application of Magnus 23X. This treatment is said to remove virtually all the paint in one application. MAGNUS CHEMICAL CO., SOUTH AVE., GARWOOD, N. J.

(New Products continued on page 123)



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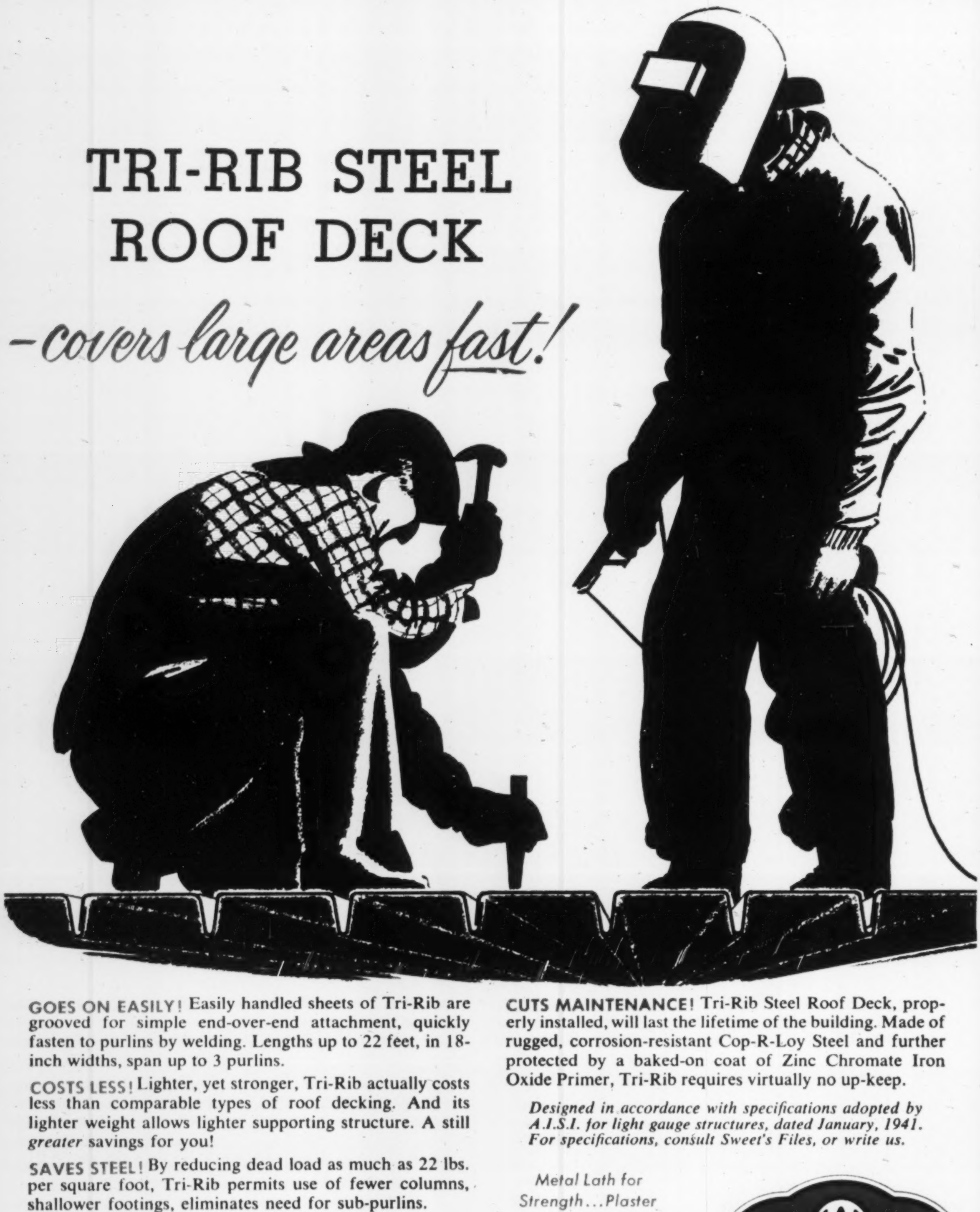

GOES ON EASILY! Easily handled sheets of Tri-Rib are grooved for simple end-over-end attachment, quickly fasten to purlins by welding. Lengths up to 22 feet, in 18-inch widths, span up to 3 purlins.

COSTS LESS! Lighter, yet stronger, Tri-Rib actually costs less than comparable types of roof decking. And its lighter weight allows lighter supporting structure. A still *greater* savings for you!

SAVES STEEL! By reducing dead load as much as 22 lbs. per square foot, Tri-Rib permits use of fewer columns, shallower footings, eliminates need for sub-purlins.

CUTS MAINTENANCE! Tri-Rib Steel Roof Deck, properly installed, will last the lifetime of the building. Made of rugged, corrosion-resistant Cop-R-Loy Steel and further protected by a baked-on coat of Zinc Chromate Iron Oxide Primer, Tri-Rib requires virtually no up-keep.

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STEEL DOES IT BETTER...TRI-RIB DOES IT BEST!

Quick loading with rocking bucket

Loading hard-to-move materials can be simplified by a new 1½ yd Traiso Load Master Model TLF-150 front-end loader. This simplification is accomplished with four-wheel drive and hydraulic rocking of the bucket into the material to be loaded.

The company claims that the latter operation, together with the scooping of lift arms and lifting of the bucket three or four ft above the ground, assures a full bucket within seconds without undue strain on the loader and without losing traction.

The loader engine is rear-mounted, and type and make are optional. A Fuller Manufacturing Co. two-stage torque converter with a multiplying factor of 2.2 to 1 is used to supply added power for heavy loads. A planetary-type reversing transmission, containing spring-loaded clutches running in oil, eliminates an engine clutch. This transmission provides four speeds forward and four speeds reverse.

The loader allows 120-in. clearance in dumping position and 137-in. maximum clearance under the bucket hinge. The manufacturer says that this added dumping-carrying height, together with bucket reach of three feet, provides greater versatility in clearing bins, hoppers, trucks, etc., and eliminates maneuvering for position preparatory to dumping. A 48-in. normal carry position is sufficiently low to allow unrestricted operator vision in all directions.

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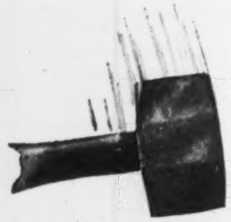

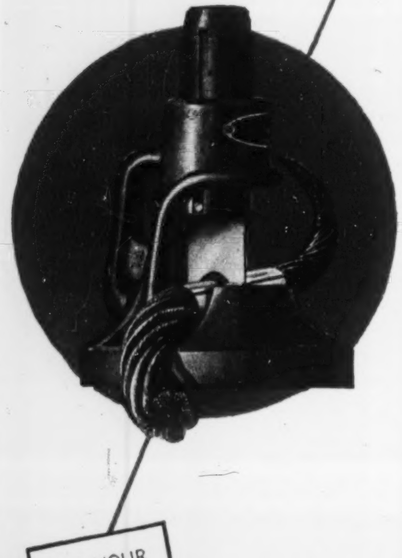

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base permit a turning radius of 18 ft at the front wheel.

According to the company, maintenance requirements are considerably reduced by placement of vital parts in the rear of the machine for greater protection from dust and dirt. As they are externally mounted the dual lifting and bucket rocking cylinders are accessible for simple adjustments and repairs without disassembling the rest of the loader. The Transmission and Gear Company, 10421 Haggerty Avenue, Dearborn, Michigan.

New Products briefs . . .

• **Midget centrifugal pump**—A new utility model midget centrifugal pump for handling liquids where capacity requirements range from 0 to 6 gal per min from free flow to 6 ft of head has been added to the line of pumps produced by the Pioneer Pump Division of Detroit Harvester Company, 19657 John R Street, Detroit 3, Mich. The pump, designated Model MU, is approximately 5 in. in diameter and 9 in. in length overall, and weighs approximately 5 lb. Inlet pipe is $\frac{7}{8}$ in. O.D.; outlet pipe is $\frac{5}{8}$ in. O.D.

• **Aluminum conveyor**—An all-aluminum conveyor that can be used for transferring concrete from ready mix trucks direct to elevated forms is offered by the Farnco Sales Company, 6713-15 Formosa Way, Pittsburgh 8, Pa.

• **Road sweeper**—A new magnetic road sweeper, designed to remove tacks, nails and other tramp iron from highways, has been developed by the Eriez Manufacturing Company, Erie, Pa. Called the Supersweeper, it can be pushed, pulled or suspended by cable or lift truck. The sweeper is made in three strengths and four widths: 24, 36, 48 and 60 in.

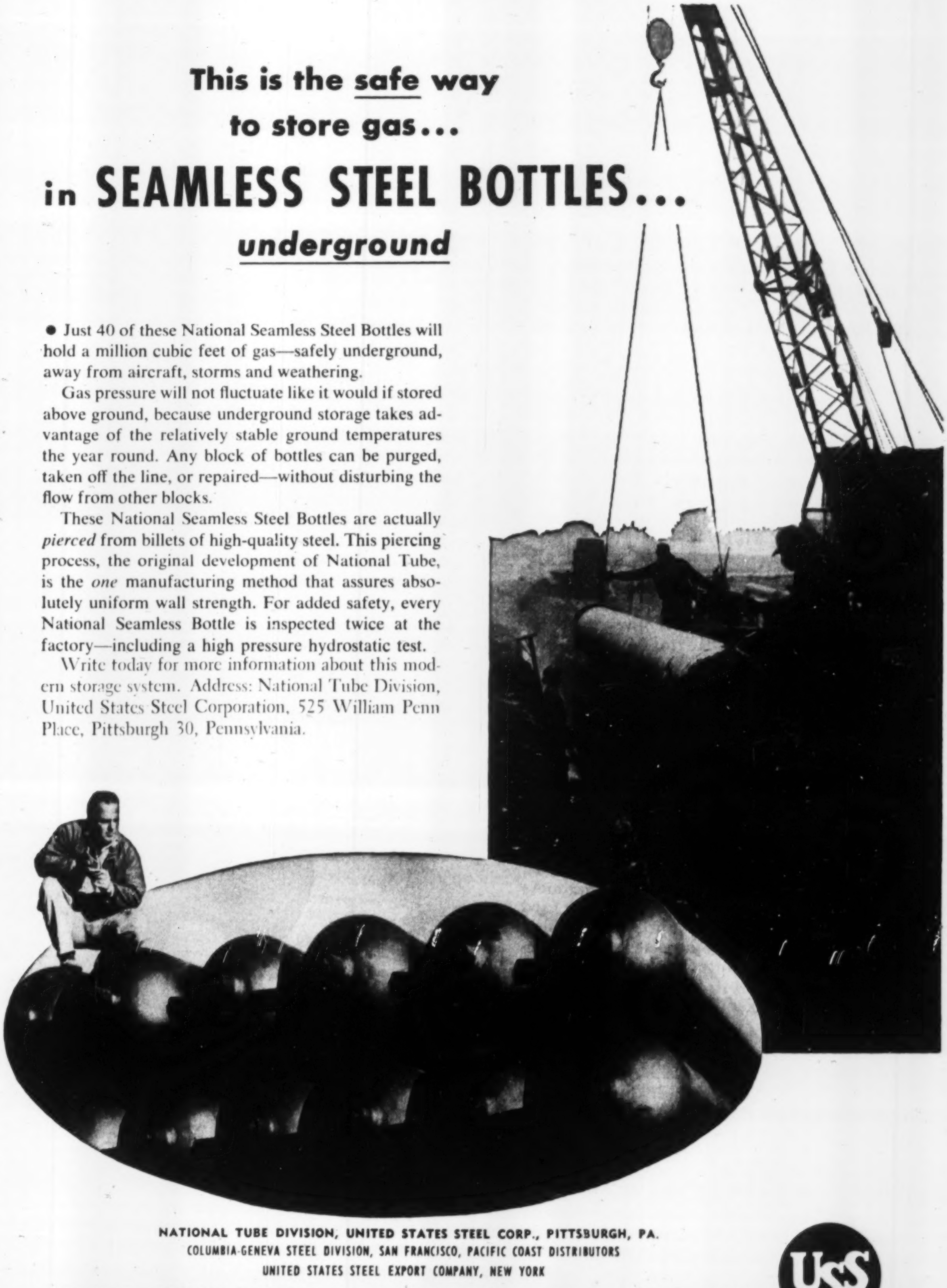
• **Drafting table**—The four-post Draftmaster drafting table is announced by the Stacor Equipment Company, 768-778 East New York Avenue, Brooklyn 3, N. Y. The table is built with an all-steel base and soft wood top. Steel tubular legs are fitted with bottom shoes to prevent marring floors. The top can be adjusted to any desired working angle by two raising devices which slide into table legs to eliminate projections. Another feature of the table is a two-drawer unit which fits under the tool drawer to offer storage space.

The drafting table comes in four different sizes, all in the standard height of 37 in.

This is the safe way to store gas...

in SEAMLESS STEEL BOTTLES...

underground



- Just 40 of these National Seamless Steel Bottles will hold a million cubic feet of gas—safely underground, away from aircraft, storms and weathering.

Gas pressure will not fluctuate like it would if stored above ground, because underground storage takes advantage of the relatively stable ground temperatures the year round. Any block of bottles can be purged, taken off the line, or repaired—without disturbing the flow from other blocks.

These National Seamless Steel Bottles are actually *pierced* from billets of high-quality steel. This piercing process, the original development of National Tube, is the *one* manufacturing method that assures absolutely uniform wall strength. For added safety, every National Seamless Bottle is inspected twice at the factory—including a high pressure hydrostatic test.

Write today for more information about this modern storage system. Address: National Tube Division, United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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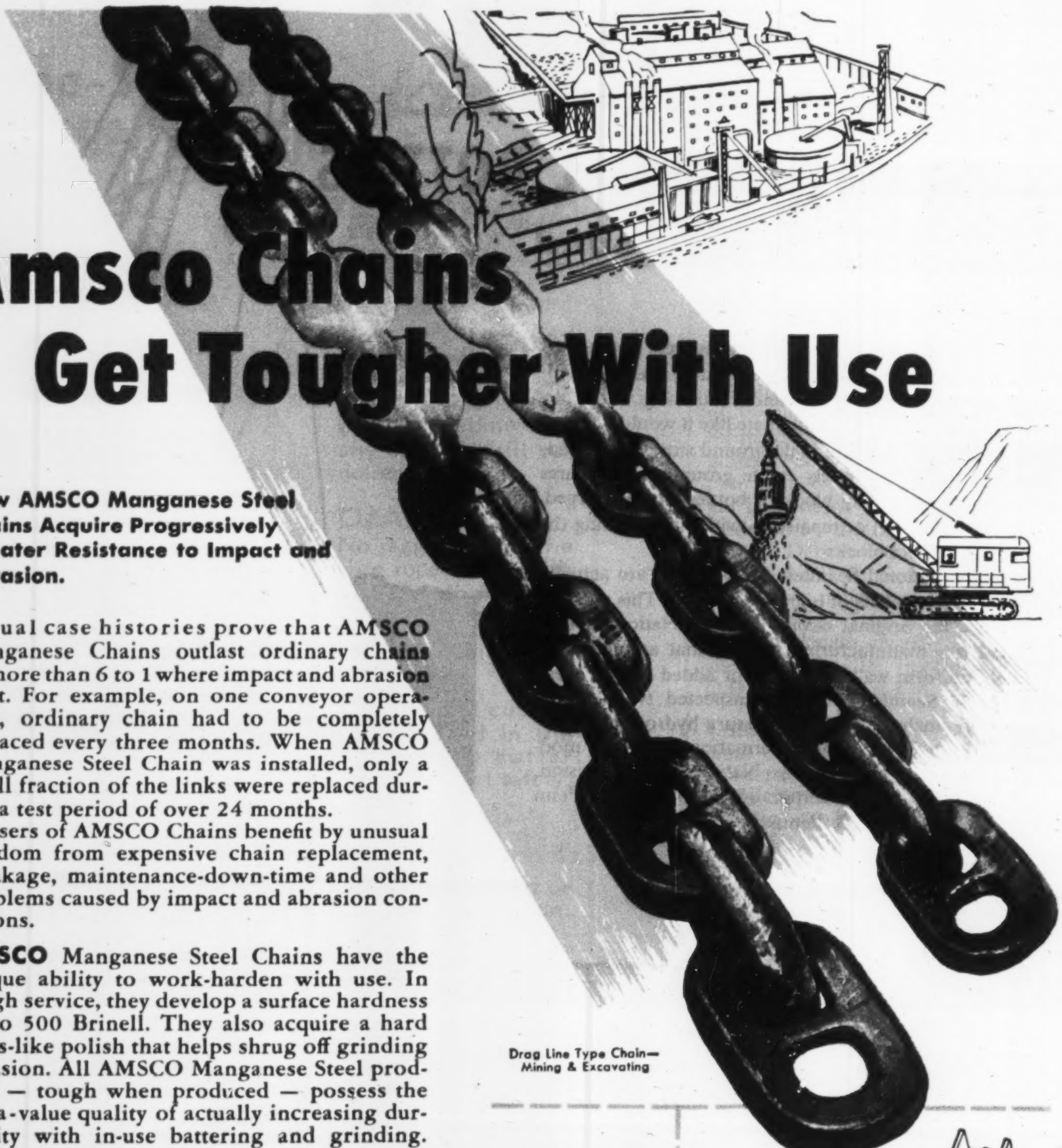
UNITED STATES STEEL



Amsco Chains Get Tougher With Use

How AMSCO Manganese Steel Chains Acquire Progressively Greater Resistance to Impact and Abrasion.

Actual case histories prove that AMSCO Manganese Chains outlast ordinary chains by more than 6 to 1 where impact and abrasion exist. For example, on one conveyor operation, ordinary chain had to be completely replaced every three months. When AMSCO Manganese Steel Chain was installed, only a small fraction of the links were replaced during a test period of over 24 months.

Users of AMSCO Chains benefit by unusual freedom from expensive chain replacement, breakage, maintenance-down-time and other problems caused by impact and abrasion conditions.

AMSCO Manganese Steel Chains have the unique ability to work-harden with use. In rough service, they develop a surface hardness up to 500 Brinell. They also acquire a hard glass-like polish that helps shrug off grinding abrasion. All AMSCO Manganese Steel products — tough when produced — possess the extra-value quality of actually increasing durability with in-use battering and grinding.

AMSCO Chains are made of Manganese Steel —the "Toughest Steel Known." They are produced in many standard and special shapes by American Manganese Steel Division—largest producer of manganese steel for all industry.

If you use chain, and desire a more durable alloy, you are invited to contact AMSCO. There's a good chance we can save you money and provide chains that will outlast your service life expectations.

Drag Line Type Chain—
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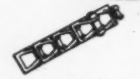
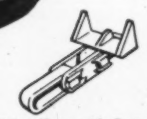
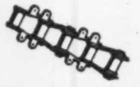


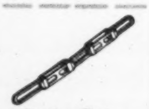
Detachable Chain—
Bucket Elevating



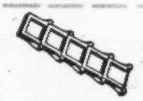
Pinlock Type with Cast-on
Dog—Log Hauling



840 Series Chain—
Bucket Elevating



Rivetless Chain—
Mining



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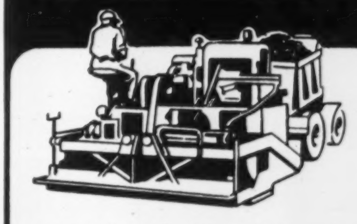

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EDITORIALS

Limits needed for airports

AIRPLANE DESIGNERS, in turning out bigger and bigger planes without regard to the effect on airport runway design, are living in a dream world from which there must be a rude awakening. When it comes, and airports can no longer be built for an amortizable cost, the airport designer will share the blame for not heading off the situation.

John M. Kyle, chief engineer of the Port of New York Authority, is one of the few engineers who has recognized the peril, and has done some thinking to circumvent it. A few months ago, in calling the matter to the attention of the Airport Section of the American Society of Civil Engineers, he used the railroads as an example of how development of rolling stock and structures can be coordinated successfully. It is an apt comparison.

Part way through a century of railroad building came a time when designers of locomotives vied with one another to produce the greatest tractive effort in a single unit. They were forgetting (or disregarding) the effect on bridges. Then came A. B. Cooper with his standards for wheel loads on bridges. Cooper's E-60, for example, could be set up as a reasonable limit for a rail system. These standards did not impose cramping restrictions on locomotive designers, but the fact that standards existed was a warning that bridge capacities and costs must be recognized as factors in selecting engine types.

In the somewhat parallel 25-year history of aircraft and runway design, civil engineers have failed to set up the needful reminders. Present talk of Army airfields with three to four-mile long runways is (and should be) very disturbing to municipalities whose airports never could be expanded to any such dimensions without prohibitive cost. No self-supporting airport can carry the burden of interest and maintenance costs imposed by excessive runway lengths. Nor has it been established that any such lengths will be needed for commercial air transport.

The trend toward greater runway lengths was materially slowed by the advent of reversible propellers. But in the meantime heavier planes with longer takeoff requirements are being designed and built. There is no coordination with the runway designers, as there was with the bridge engineer.

Apparently it is on the civil engineer that responsibility must rest for making clear the economic aspect of uncontrolled aircraft design. Landing-wheel loads can be distributed by multiple-wheel units. Jets can be set at such heights and angles that runway surfaces are not damaged. There are other measures that could be taken to insure design of airplanes that can operate off fields whose construction and land costs are not prohibitive. But these measures are not likely to be taken unless airport designers come forward with a forceful pronouncement on standards and limitations. We urgently need Cooper's counterpart in the field of airport design.

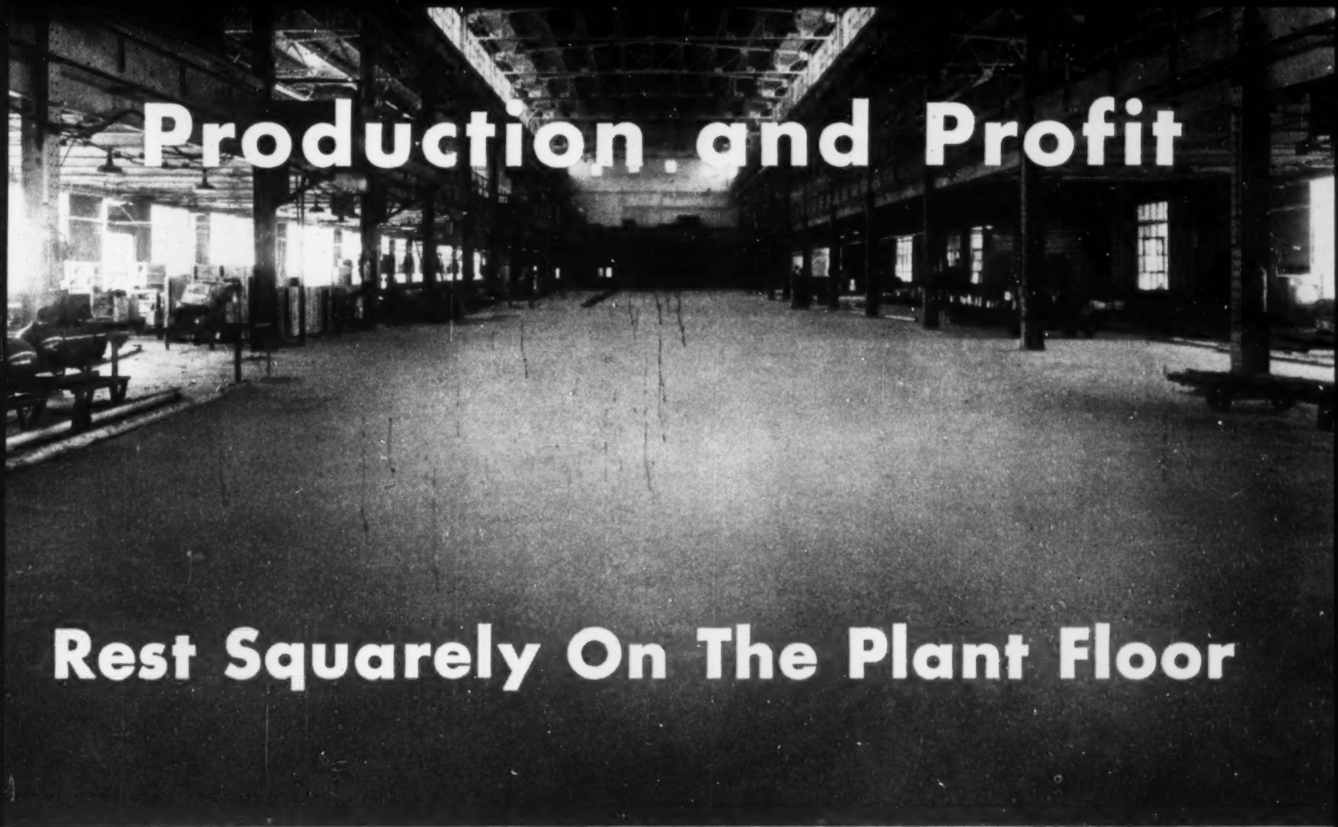
Toward a water policy

A NEW WATER-RESOURCE POLICY is beginning to take form in Congress. When the Appropriations Committee of the House proposed a major cut in funds for the Bureau of Reclamation, Bonneville Power Administration and the Southwestern and Southeastern Power Administrations, it stated that it had taken that step in the belief that the federal government should appropriate funds only for work that private enterprise cannot or will not undertake. The committee said further that "where private enterprise is unable completely to develop resources without assistance there should be a working partnership between the federal government and private interests in which the latter should discharge their interests to the fullest to serve the public interest and place additional property on the tax rolls."

A striking example of the effect of the lack of a broad federal policy can be found in California where friction developed frequently in recent years between the Bureau of Reclamation and the Corps of Engineers over which agency was to do certain work on rivers in the Central Valley. Now, although the state is giving thought to reimbursing the federal government for its expenditures on the Central Valley Project, in order to get control of the waters of that valley in its own hands, and is making plans to expand that project further, both the bureau and the corps are going ahead with their plans for additional work in that valley. Also, despite the fact that the state has begun studies of an even larger water project based on the Feather River, the bureau is working on a similar scheme.

No particular blame can be placed on the bureau for this action as it is in line with the thinking that has directed its activities for the last decade or two.

The step taken by the Appropriations Committee will at least put a check on further duplication of effort pending the writing of a clearly defined federal policy toward water-resource development. However, the policy itself should not be developed by piecemeal patchwork such as this committee's explanation of why it cut the budget requests of one federal department. A new policy should be the result of a thorough study of all aspects of the problem. Former President Truman attempted to do that when he set up the President's Water Resources Policy Commission. Now, presumably, a new start will have to be made. The facts collected by the Truman commission still are fresh enough to be useful. Hence if Congress or the President should appoint a new commission soon, a broad water policy proposal could be laid before Congress for action at an early date.



View of Masterplate Floor in The Bryant Heater Co. Plant, Indianapolis, Indiana. In excellent condition after 7 years of service. Archt.—Allen and Kelly; Contr.—Wm. P. Jungclaus Co.—both of Indianapolis, Indiana.

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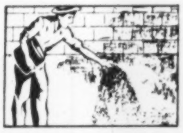
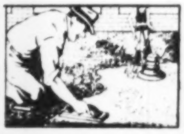
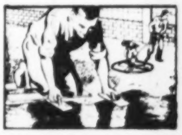


APPLY Masterplate dust-coat to **freshly floated** concrete.



FLOAT dust-coat **on surface** of slab by hand or by machine.



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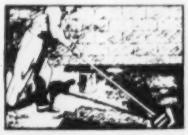

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Note Thickness of Iron-Armored Surface

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Constructing a hot-mix Texaco Asphaltic Concrete pavement in two courses over old concrete on section of U. S. Route 31-E south of Louisville, Ky. Work done by the Breslin Construction Company of Louisville.

Same surface--different foundations--

for these Kentucky State Highways

When Kentucky constructed these two highway projects near Louisville, the wearing surface laid on both highways was the same—two courses of hot-mix Texaco Asphaltic Concrete. In one case, the foundation which supports the asphalt surface is waterbound macadam; in the other, the existing cement concrete pavement on the highway provides an adequate foundation for the new surface.

A resilient, heavy-duty Texaco Asphaltic Concrete surface for street, highway or airport may be laid with excellent results on a variety of foundations. The two foundations recommended by our engineers as most desirable are coarse-graded asphaltic concrete (black base) and asphalt penetration macadam. However, such foundations as waterbound macadam and gravel, of adequate thickness and properly compacted, provide very satisfactory support for a Texaco Asphaltic Concrete top course.

Whatever your paving project, it is a good idea to investigate the various types of construction available to you through the use of Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils. These types range from heavy-duty asphaltic concrete down to a low-cost surface for light traffic. We have published two booklets which supply helpful information regarding all of these types. Copies can be obtained with no obligation by writing our nearest office.

This heavily traveled hot-mix Texaco Asphaltic Concrete pavement on Kentucky State Route 61 at Louisville is supported by a waterbound macadam foundation. The contractor was the George M. Eady Company of Louisville.

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